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THE
QUARTERLY JOURNAL
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FEBRUARY, 1922

AGRICULTURE IN EASTERN EUROPE

SUMMARY

I. Overcrowding of the land, 170. — Importance of agricultural problem of eastern Europe. Density of population. Large proportion of rural population; its high density. Low yields. Per capita grain production. II. Consequences as to standard of living and food supply, 174. — Predominantly vegetable diet. Small surplus after supplying wants of producer. Live stock. Prewar grain exports. Reduction of food output during war; continuation of similar causes after war. Widespread food shortage. The Russian famine. III. Prospects for recovery, 180. — Conditions favoring recovery. Importance of political conditions. Increased crops of 1921 except in Russia; exports of food; effect on currency exchange. Probably slower recovery of Russia. IV. Prospect for progress in peasant agriculture, 183. — Vicious circle of overcrowding, poverty, ignorance. Effects of overcrowding on agricultural methods. Shallow plowing. Unsatisfactory crop rotation. Scattered holdings — their explanation and consequences. Mir system. Beneficial effects of democracy. Rapid progress improbable. V. The large estates, 190. — Large-scale operation. Superior efficiency. Polish estates. Agrarian reform — division of estates. Direct gain to peasant overestimated. Measures already taken. Ultimate effects, especially on peasant psychology.

THE great food relief operations conducted by the United States government and later by the private agency of the American Relief Administration and other less important organizations have directed attention more than ever before to the agricultural problems of eastern Europe. Just as the food problem of the

Allies during the war drew public thought to the overwhelming importance of world agriculture, so the food shortages of eastern Europe during and since the war have awakened new interest in the present agricultural conditions of that region and in its future position in relation to world food supply.

I

Unless one examines carefully normal conditions as they showed themselves before the war, it is impossible to understand how a primarily agricultural region like eastern Europe could have found itself in a position of widespread famine. It had been customary, on the part of many people, to think of eastern Europe as possessing a great surplus of agricultural products for export. Some conceived of it even as a region of sparse population comparable to Canada or the Argentine. It was familiarly known that the masses of the population were poor, but the degree of their poverty was not fully grasped and it was attributed chiefly to their ignorance and to misgovernment.

The truth is that most of eastern Europe is very densely populated, that its prewar export of food products represented a very small proportion of its production, and that the poverty of the people was due more to overpopulation than to any other one cause, if not more than to all the other causes combined. While the conditions may have been fairly well understood by economists, it is worth while to repeat, for the sake of emphasis, certain facts which may be familiar to them, as well as to consider the bearing of these facts upon the present situation in eastern Europe and upon the probable future.

Prewar agricultural conditions, of course, varied considerably in different parts of eastern Europe. What is

said in this article applies most fully to European Russia and Poland (except Prussian Poland, where conditions were very different). It applies in a somewhat less measure to Roumania, Bulgaria, and Jugo-Slavia, and in a still less measure to Czecho-Slovakia and Hungary. Of the most typical regions it may be said that the great bulk of the population is engaged in agriculture, that the population is so dense that the agricultural worker has only a very limited amount of land to work on and that the great bulk of the food which he produces has to be consumed by himself, his family, and his domestic animals, leaving comparatively little for exchange for other products and services.

The greatest density of population is found in Poland. According to the latest prewar estimates for Russian Poland (the so-called Congress Poland) its density of population was about eight times that of the United States. There were about 270 inhabitants per square mile, as against 35 in our own country in 1920. Even such a rich agricultural state as Iowa has only 43 inhabitants per square mile. The density of population of Galicia was the same as that of Congress Poland. In European Russia, as a whole (excluding here, as in later figures, the present Poland, the Baltic states, Bessarabia, and Transcaucasus) there were 67 people per square mile. This figure, however, gives an inadequate idea of the density of population of those parts of Russia which are adapted to agriculture. Over vast northern stretches the cultivation of the soil is impossible. If two governments only, Archangel and Vologda, be excluded, the prewar population density rises to 90 per square mile, and in many governments of the Black Soil region of southern Russia the figure was from 120 to 180. Owing to the war, famine and revolution, the population of both Poland and Russia has declined but it is still extremely dense.

These contrasts between eastern Europe and the United States by no means fully bring out the great difference with respect to the average quantity of land at the disposal of the agricultural worker. A far larger proportion of the population of that region is engaged in agriculture than is the case in our own country. Statistics as to occupations or as to urban and rural population are not strictly comparable. In 1920, 49 per cent of the population of the United States was classed as rural, that is as living outside of cities and towns of 2000 or more inhabitants. In Congress Poland just before the war the proportion classed as rural, that is, as living outside the cities and market towns, was 68 per cent; in Galicia it was 80 per cent and in European Russia it was 86 per cent. The number of rural inhabitants per square mile in the United States as a whole in 1920 was 17.3; in Iowa, a typical agricultural state, 27.4. In Congress Poland, the number was as high as 183, in Galicia 213; in European Russia it was 58, but in many sections of the country the rural density was from 100 to 150 per square mile.

There is, of course, a causal connection between the density of population in eastern Europe and the high proportion engaged in agriculture. The situation is quite different from that in countries like England, Germany, and Belgium. Density of population is there accompanied by a small proportion of agricultural inhabitants. The industrial class subsists by the import of great quantities of food which are paid for by the products of manufacturing and mining. But in a country not sufficiently industrialized to be able to pay thus for imported food, if the density of population is very high, a large proportion of the people must work upon the soil in order to gain enough food for life. The rural population in eastern Europe is incapable of feeding a

large urban population in addition to feeding itself. The great bulk of what the farmers produce they must consume themselves.

Not only, however, does the agricultural worker of eastern Europe have far less land at his disposal than his fellow in more happily situated countries, but from what he has he extracts comparatively little per unit of area. Even before the war crop yields in this region were low. In Russia they fell below those even of a country with comparatively extensive cultivation like the United States, and were scarcely a third as high as yields in countries like England, Denmark or Germany, where intensive and scientific methods are applied. Taking all bread grains together — more precisely all grains except oats — the United States in 1919 harvested 1140 pounds per acre planted to these grains. The corresponding average for European Russia before the war (1911–15) was 660 pounds.

As a consequence of overpopulation and underproduction, the agricultural output per head of the total population of eastern Europe is extremely low as compared with that in the United States, and the production per capita of the rural population relatively far lower still. In our own country in 1919 the production of all grains except oats was equivalent to 1889 pounds per capita of the total population. For European Russia the corresponding figure before the war averaged 804 pounds or much less than half as much. If the calculation be based upon the rural population only, we have for the United States 3885 pounds per capita and for European Russia only 937 pounds, or less than one-fourth as much. If one should take into consideration all other products of the soil, the comparative picture presented would not be materially different. Without entering into statistical details it may be said broadly that in Congress Poland

and in Galicia the prewar conditions as regards output of crops were not greatly different from those in Russia. Yields per acre were higher but the average output per head of the rural population was as low or lower, and in Congress Poland the output per head of the total population was lower than in Russia. In old Roumania, Bulgaria, and old Serbia yields per acre were also very low.

II

Leaving for the moment the discussion of the causes of the inefficiency of agriculture in eastern Europe, let us consider some of the results of the low per capita production as regards normal methods of living and also its relation to the food shortage of the war and the postwar period.

It requires no argument to show that the rural population of eastern Europe, producing in general only from one-third to one-fifth as much per capita as the rural population of the United States, must content itself with a far lower standard of living. In the first place the eastern European peasant must put up with a simple and cheap diet, chiefly composed of vegetable foods. He cannot afford to convert much of his grain into meat and other animal food products, for the food value thus obtained is much less than that of grain itself. The calory value of grain consumed as bread is five or six times as great as that of meat obtained by feeding the same quantity of grain to a beef steer. In the second place, the peasant cannot spare much, either of the grain as such or of the animal products derived from it, to exchange for other commodities which will go to promote his well-being, to say nothing of his comfort or luxury.

It is impossible to overemphasize the enormous contrast between the standard of living of eastern Europe

and that of the United States. It was borne in upon the writer in a striking manner last summer when on returning from Poland he spent some time in one of the rich rural regions of the United States. It is true that the contrast is greater now, when Poland, like the rest of eastern Europe, is suffering from the aftermath of war, than it would have been some years ago. But even under normal conditions it is far greater than the mass of American people imagine. Statistics are not available, but there is reason to believe that the average Middle Western farmer, after supplying the food requirements of himself and his family, has left for sale to satisfy other wants — housing, clothing, fuel, furniture, education, amusement and what not — not less than five times, probably more than ten times and possibly even twenty times as much product as remains to the eastern European peasant after he has satisfied his much simpler food requirements. In the better agricultural regions of our country almost every farmer has an automobile costing from five hundred to two thousand dollars and requiring some hundreds of dollars yearly to maintain. There is hardly one peasant (that is, one ordinary farmer as distinguished from the great land owners) in all eastern Europe who owns even the most rudimentary "flivver." This, however, is an inadequate illustration. If among the things that the average American farmer enjoys, it were automobiles alone that the Russian or Polish peasant had to get along without, he would consider himself happy enough.

The small consumption of meat and other animal products in eastern Europe greatly affects the whole character of agriculture. Live stock raising is far less important than in the United States. Domestic animals serve for draft purposes more than for food. In the United States in 1919 there were 63 cattle for each

hundred of human population. In Russia in Europe (within its present boundaries) there were, before the war, 23. Far more striking is the contrast with regard to hogs. In this country there were 56 per 100 inhabitants; in Russia before the war there were 9. The present figures for Russia would be far lower than these. As is well known, the great bulk of the corn raised in this country — and it is our principal grain — is fed to animals. In Russia very little grain of any sort is fed to food animals and comparatively little even to working animals; they have to subsist chiefly on hay and root forage. The comparative unimportance of live stock, with its consequent lack of fertilizing manure, is one of the explanations of the low yields of crops. For the same reason the eastern European peasant is forced to idle most of the winter, his productive effort being virtually confined to the crop season.

The fact that eastern Europe before the war was a great exporter of grain must not be misunderstood. It exported from its poverty, not from its wealth of agricultural production. In part, the exportation was attributable to the fact that a considerable fraction of the agricultural output went to the state or to landlords in the form of taxes, rents, or profits of large estates. A small number of wealthy people were able to import luxuries, largely by export of the products wrung from the sweat of the peasants. Of course the peasants themselves had to buy some things — machinery and tools, a little petroleum, a little cloth, and some household utensils — and part of these had to come from abroad and to be paid for by the exportation of grain.

In any case, the prewar exportation of grain from most parts of eastern Europe was a small proportion of the total production. False ideas as to Russia's grain export are sometimes drawn from the comparison of

quantities of wheat shipped abroad with the quantity produced in the country. Most of the Russian peasants cannot afford to eat wheat. Their principal bread grain is rye. Of the combined production of wheat and rye in Russia before the war only one-eighth was exported, and the fact that the quantity so exported was equal to or greater than the wheat exports of the United States was attributable merely to the vast area and population of Russia. It should be remembered that while grain constituted the bulk of agricultural exports from Russia, our own country, besides grain, exports meats and fats, representing indirectly a great quantity of grain, and that we export also much cotton. Poland had before the war hardly any net exportation of grain at all. Roumania and Bulgaria, less densely populated, exported a much larger proportion of their crop than Russia, but even in these two countries the greater part of the product of agriculture was consumed by the farming population itself. It should be remembered, too, that the farms of the United States, besides what they export, not only feed their owners and workers with a much more expensive diet than that of the eastern European peasant, but also provide with an expensive diet the large urban population of our country.

It can readily be realized that with the normal situation of agriculture and of food supply such as has been described, war and revolution struck a mighty blow to the well-being of eastern Europe. That region could ill afford any great reduction of its agricultural output. A tremendous reduction was forced upon it by the war and its aftermath. Food shortage amounting to famine was the inevitable result.

The great war affected the agricultural production of eastern Europe in several ways. Military operations directly precluded the cultivation of the soil over con-

siderable areas. Peasants were driven from their homes; their houses and other buildings were destroyed; their animals carried away; their fields laid waste. This was particularly true of a strip some hundreds of miles long and from twenty to fifty miles wide running through what was western Russia and through eastern Galicia, where the Germans and Russians faced one another for many months. The Russians in retreating to this line of defense laid waste the land, in order that their enemies might not have supplies. Roumania and Serbia likewise suffered greatly from direct military operations.

Vast numbers of horses were taken from the farms for military use. For farm machinery eastern Europe was largely dependent on western Europe and America; shut off from these sources of supply, it witnessed a gradual wearing out of the more elaborate machinery, and even a large proportion of such fundamentally necessary implements as plows and harrows became unserviceable. In certain sections, notably in western Poland and in the Ukraine, many of the farmers, especially the owners of large estates, had been accustomed to use quantities of artificial fertilizer, mostly imported; the deprivation of this was alone responsible for a marked decline in output. In the province of Posen, which was one of the best cultivated districts of all Europe, the average yield of rye, the chief crop, which before the war had been between thirty and thirty-five bushels per acre, fell by 1919 to only a little over twenty bushels.[1]

The war also had a disastrous effect on the psychology of the farming population. Hostile governments and armies often requisitioned supplies from the farmer, paying him far less than their value or nothing at all. Governments, whether hostile or otherwise, thought it

[1] The yield was still less in 1920, but this was due to unfavorable weather.

necessary, as a protection to the urban population, to impose all sorts of restrictions on prices of and trade in agricultural products. Doubtless these measures of control were to some extent justified, but they tended greatly to discourage production.

In most of the countries of eastern Europe some at least of these conditions adverse to agriculture did not cease with the war. For two years after the conclusion of the armistice between the Allies and the Central Powers, Poland was at war with the Bolsheviks; in 1920 invasion swept over a third of her lands at the very harvest season. Russia is still in the throes of revolution and misrule. Throughout eastern Europe lack of ability to pay, accentuated by the tremendous fall of exchange due to other causes as well as to lack of exports, continued to check the importation of machinery and fertilizers. Government control of food prices has been maintained in most of the countries almost, if not quite, to the present day — in some cases after the justification for it had wholly ceased.

Food shortage was the natural result of these war and postwar conditions. To some extent throughout the war, to a large extent during its last year or two and for a year or two after its close, suffering for lack of food reigned in all of eastern Europe. In Russia conditions have grown worse with each succeeding year, culminating now in a terrific famine.

The food shortage has been felt, of course, most severely by the industrial population. The peasant looks first after his own food requirements. Besides, he often had little motive to sell any surplus he might possess, because there was little he could buy with the proceeds. The production of mining and manufacturing industry had been even more disturbed by the war than that of agriculture, and the cities had almost nothing to give in

exchange for the farmer's products. It came to such a pass that often the peasant gave up food to the urban population only under government compulsion — in Russia especially backed by the bayonet. In most regions the peasants themselves have had enough to eat. In certain sections, however, which suffered most from direct military action — eastern Poland, for instance — even they have been hard pressed by famine. In Russia, where Nature contributed to the disaster, millions of peasants are threatened with starvation this winter.

There is no need here to enter into detail regarding the causes of the Russian famine. The Soviet authorities themselves admit that their former policy of requisitioning from the peasants their entire surplus, of suppressing entirely free trade in food, was a great blunder. They have substituted a tax in kind, after paying which the producer is free to sell his grain. Other causes have contributed to the great reduction in the area planted in Russia and to the lowering of the standard of cultivation, but the lack of motive to produce was the most important factor. The great drought in the Volga Basin — by no means the whole country being affected — put the climax on a situation which was already bad.

III

In considering the prospects of agriculture in eastern Europe, one must distinguish the near from the distant future, and distinguish the prospects for a mere recovery of prewar standards of production and of living from those for an advance beyond those standards.

Fortunately agriculture is one of the hardest industries to kill. It is less dependent on external circumstances than manufacturing or mining industry. Moreover the somewhat primitive agriculture of eastern

Europe would, under favoring conditions, stand a better chance of regaining its former level than would a highly advanced agriculture which had suffered a similar blow. Having always been on a low plane it had not far to fall, and has not far to rise again. Above all it was and is less dependent on world market conditions than an agricultural industry which sells most of its products either abroad or to an industrial population at home. The peasant having always produced chiefly for his own consumption has a powerful incentive to bring his output up at least to the point where it will supply that fundamental need. He has not so much land but what he can till it all after some fashion even with a much reduced equipment. Most peasants never used artificial fertilizer.

The big estates of eastern Europe, which, as more fully shown later, were before the war considerably more efficient than the peasant farms, have suffered relatively worse than the latter from the war and its sequences. They are likely, so far as they continue to exist at all, to recover their normal status somewhat more slowly.

The prospects for the restoration of agriculture in eastern Europe to its prewar efficiency depend largely on political conditions. These, of course, can scarcely be forecasted, especially in Russia. Wherever it has had a fair chance, agriculture in eastern Europe has already shown a marked tendency toward recovery. Except in Russia the improvement in 1921 was especially conspicuous. In 1919 Poland, Roumania, and Jugo-Slavia all received food aid in large amounts from the United States. From the crop of 1921 all these countries will be able to export. It should be understood, however, that a country which has long been deprived of much needed foreign goods will export food even at the expense of a less abundant and varied supply at home than would otherwise be considered necessary.

Data are lacking for a general comparison of statistics of recent crops with prewar crops in eastern Europe. The best statistics are those of Poland. The government authorities estimate that the 1921 output of rye, the principal grain, while double that of 1920, was only 72 per cent of that of the last year preceding the war. The deficiency is greatest in the regions which before the war had the highest yields.

Taking it altogether, the prospects for the restoration, in eastern Europe apart from Russia, of something approaching the prewar efficiency of agriculture seem fairly encouraging. The bearings of the improvement which has already been achieved upon the general economic and financial situation of this region merit more discussion than the space of this article will permit. Broadly speaking it would appear that the eastern European countries — always excepting Russia — are already in a position such that they could, if they would apply taxation vigorously, stop that printing of paper money which is at present the chief cause of decline in their exchange. Government expenditures, relatively to the income of the people, have been reduced materially, and the great excess of imports over exports, which tended to cause a fall in exchange greater than that in the internal buying power of money, has also been much lessened. To balance the budget of these countries, however, necessarily means heavy taxation of the peasant class, which, altho poor, receives a large proportion of the total national income — a much larger proportion than before the war. The peasant class is pretty much in the saddle politically, and it has not yet come fully to realize the necessity of shouldering the burdens of government expenditure, altho it is showing a growing appreciation of that necessity.

As to Russia, prophecy is much more difficult still

than as regards the rest of eastern Europe. Everything depends on the political conditions. Even, however, if a stable and just government is soon established, it will take long for Russian agriculture to recover fully. Its ruin has been more complete than anywhere else. The loss of machinery, tools, and draft animals has been enormous. It will take years to restore the confidence of the peasant in the advantage of producing a surplus beyond his own needs. And even when such a surplus is forthcoming, its exportation in any large quantities will have to wait the rehabilitation of the Russian railroads and of the coal mines on which the operation of the railroads hangs. No doubt, however, as elsewhere, the long deprivation of supplies from abroad will create strong pressure for export even from a production much lower than that before the war. On the whole it seems little likely that Russia can regain its former place in the world's grain trade for a good many years to come.

IV

Looking forward to the more distant future, density of population stands forth as the principal factor tending to check the progress of agriculture in eastern Europe, and quite capable, perhaps, of damning it to decades if not centuries of inefficiency.

A dense agricultural population is not necessarily poor, altho it can never hope to be as prosperous as a sparser agricultural population of equal intelligence and skill. A large amount of labor applied to the soil will, of course, with equal intelligence, produce more per acre than a small amount, but it will not produce so much per man. Unfortunately where a large amount of labor is applied with a small degree of skill, as in eastern Europe, even the output per acre may become low, while that

per man sinks to a pitifully small quantity. The worst thing is that, where this condition has once come about, it is very hard to cure. A vicious circle becomes established. Because population is dense it is poor. Because it is poor it cannot afford education. Because it is uneducated it makes poor use of its resources. Not only that, but lack of education leads to unwise and unnecessary multiplication of numbers, and the chain begins all over again.

It must not be hastily assumed that there is some inherent inferiority of race which accounts for the low standard of civilization and efficiency in eastern Europe. Such inferiority may exist, but it is difficult to prove its existence and it certainly is much less marked than many people suppose. Density of population, poverty, and ignorance have come about mainly, one may believe, through a train of historical circumstances whose causes are so difficult to trace that one is almost justified in calling them historical accidents.

When one comes to examine in detail the agricultural methods of eastern Europe, he finds that their inefficiency is largely explained either by the small size of holdings resulting from density of population or by practices as regards land tenure which are relics of the days of feudalism and serfdom, until so recently reigning in that region. Ignorance of course contributes largely to the inefficiency, but it is by no means the only cause.

The two most striking defects in the peasant agriculture of eastern Europe are the inadequate plowing and the unsatisfactory rotation of crops. Both defects, while more serious as the result of the war and the subsequent events, have always been grave. In many cases the fields are little more than scratched by the plow. Especially where the soil is heavy, the furrow is often not more than four inches deep and seldom more than

six. Even in a country with as light a soil as Poland, plowing is far shallower than is customary in the better farming regions of the United States. Often the fields are very well dragged and even rolled after plowing; but this does not make up for the lack of depth, which not only prevents the adequate amount of food from reaching the roots but also prevents the proper conservation of moisture.

The shallow plowing is due in part to the character of plows used and in part to the lack of power to propel them. Plows are often mere sticks of wood with a small tip of iron. Tractors are of course practically unknown to the peasant farmer. To be sure, in prewar times, there were enough horses in most parts of eastern Europe to do plowing well, had their labor been fully utilized. The difficulty as to horse power arose from the small size of the holdings. The average peasant could not afford more than two horses—often very small beasts, at that — and many could afford only one. If the peasant who had two horses had three times as much land and four horses he could plow it all deeply enough. Obviously better results could be obtained by coöperation among neighbors in the use of draft animals, and to some extent this was practiced even before the war. It has been practiced still more of late on account of the reduction in the number of draft animals as the result of the war. But at present there is a real shortage of such animals in most sections, so that even with coöperative plowing the peasants can scarcely till as much land as before the war with equal thoroughness.

No doubt the peasant's ignorance of the importance of deep plowing has had something to do with his practice, but broadly speaking his small holdings and his poverty have been a more important cause.

Peasant farming in eastern Europe is generally char-

acterized by a very small number of crops. In most regions the peasant ordinarily sows, in the fall, rye and rye only, altho in some sections wheat replaces rye or both may be sown. In the spring, he sows chiefly oats or barley or both, except in certain regions, especially in the south of Russia, where large amounts of spring wheat are sown. He has a considerable acreage of potatoes in many cases. On the other hand, peasants seldom raise other root crops in important quantities, nor do they raise much clover, alfalfa or other nitrogen-fixing plants.

Closely akin to the unsatisfactory rotation of crops is the wasteful practice, widely spread over eastern Europe, of leaving a large fraction of the land fallow each year. The normal thing is to plant fall grain on a given piece of land one year, to plant spring grain and potatoes the second year, and to leave it idle for recuperation the third year. To be sure, in some regions the peasants have pretty much got away from this rudimentary "three-field" practice. The inefficiency of the crop-rotation and field system in eastern Europe is partly due to ignorance, no doubt, but it is partly due, like the shallow plowing, to the very small size of the fields. Comparatively small fields are of course an inevitable result of small land holdings. The evil of small fields, however, is in many places greatly aggravated by the practice of splitting up the holdings into numerous scattered parcels. A peasant who owns ten acres is likely to have it in ten or a dozen pieces, perhaps situated several miles from one another. The eastern Europeans call this "checker board" agriculture, altho the adjective is hardly happy since these parcels are usually in the form of long strips sometimes only a few feet wide, so narrow as to seem to an American almost microscopic.

The explanation of the existence of this checkerboard system is complex. It is, of course, possible for lands to become very much broken up merely as the result of the dividing of a parent's holdings among his children and the subsequent shifting of titles by marriage. In a country like the United States, inheritance and marriage tend but little to result in scattered holdings because purchase and sale and exchange of land are easily effected from the legal standpoint and are a part of the common tradition of the farming community. But in many of the countries of eastern Europe, transfer bristles with legal difficulties. Moreover the peasant has not yet acquired confidence in titles and feels more secure of that which he has received through his parents or through his wife than of that which he buys or gets by trading.

In much of eastern Europe, however, the parcelation and scattering of holdings has gone much farther than would have resulted from inheritance and marriage alone. It has been augmented by peculiar practices of the past. Formerly peasant villages often held — or perhaps, rather, cultivated, since the title was usually in the crown or in the noble — their lands in common. In that case the village land was generally cultivated on a three-field system, such as has already been described. In the course of time common cultivation ceased and the individual peasant was allotted land, either permanently or for a term of years. Instead, however, of receiving the land all in one piece he received a strip in each of the three fields. These three strips were then further subdivided through inheritance and shifted by marriage.

This situation with respect to land tenure has much to do with the choice of crops. The peasant holding several small strips has far less freedom than he would have if his land were all in one place. He must in general

sow what his fellows sow. If he did not he would have to tread down their crops in order to get to his fields. It would be quite impossible to have a road leading to each of these microscopic strips; that would waste too much land. Besides, where strips are very small, self-seeding from neighboring fields is difficult to prevent.

In many parts of Poland and of Russia this situation results in a virtual continuation of the days of community operation. Often one sees what looks like a single huge field such as those of the big estates, but which actually consists of many separate strips under the same crop. Each peasant plows, harrows, seeds, and harvests his own strip, but he does each class of work at the same time as his fellow peasants. It is obviously more difficult for a whole community to make up its mind to adopt some new system of crop rotation than for the individual to do so.

Another related cause of inefficiency of agricultural production appears in many parts of Russia. This is the Mir system of tenure. Under it the peasant does not have permanent ownership of the land he tills. The residuary title is in the village — the peasant group. From time to time the lands are redistributed. Between such redistributions the peasant has nominally complete control of his land, altho in practice, as has already been suggested, he is greatly limited in choice of crops. Under the system of periodical redistribution the peasant lacks adequate incentive for careful cultivation and especially for the use of artificial fertilizers or for drainage or other permanent improvements.

The persistence of such excessive parcelation of land and of the practice of periodic redistribution is partly a result of ignorance. The peasant does not realize how much he is losing in efficiency. He does not grasp the possibility of different methods. At the same time it

should not be forgotten that in the Old World habit and tradition are more deeply ingrained than in a country like our own. It is not easy even for well-educated people to break away from the traditions of centuries and the customs of their neighbors.

The greatest hope for ultimate betterment of peasant agriculture in eastern Europe lies in democracy. Crude as may be the democracy thus far established, or that likely to be achieved for a long time to come, it cannot be so deadening as the despotism which, in Russia especially, formerly existed. The eastern European peasant was formerly a cipher politically. In every country of eastern Europe, except Russia, he is now a full-fledged citizen, whose vote counts equally with that of the land baron. Even in Russia, where one dictatorship has given place to another, it may readily be that the revolution has prepared the ground for a real rule of the people.

The establishment of democracy will enable the masses of eastern Europe to correct age-long abuses, which have not merely wronged them but have hampered their efficiency. It is likely to have a wholly beneficial effect upon their psychology. The consciousness of possessing rights and power is a stimulus to effort and to self-improvement. One of the most striking features in the life of Poland is the eagerness of the peasants for the educational facilities so long denied them. This consciousness makes also for independence of judgment, for the critical examination of traditional methods, for readiness to try experiments.

None the less, however hopeful one may be as to the success of democracy in eastern Europe, there can be no rapid overcoming of the inefficiency of agriculture. Poverty will still remain because overcrowding will still remain, and poverty will long prevent the masses from

securing any high degree of education even in practical agricultural lines. It is even possible that, unless the people learn to restrict the multiplication of their numbers, they will find it impossible to raise their standard of living. Increase of acre yields may bring no increase of yields per man.

V

The discussion, thus far, has dealt chiefly with the peasant. How about the large owner? Will he make progress beyond the prewar efficiency? The question is rather whether he will persist at all and what will be the effect on production if he loses his holdings.

Broadly speaking, the large land owners of eastern Europe have cultivated their lands better than the peasants. Their efficiency, however, has varied enormously, from country to country, section to section, and farm to farm.

Most of the big estates of eastern Europe have been operated and are now operated — where they still exist — by large-scale methods. Comparatively seldom does the owner lease out his holdings to peasants to operate on a small scale. The whole estate may be operated as one farm or, if very large, it may be divided into several or many farms — each however of considerable size, say a thousand acres or so — which are operated either under lease or by hired managers. The typical farm of this type has extensive buildings, numerous draft animals and a large corps of hired workers. Many of the laborers are permanently attached to the estate; others, especially at harvest time, are temporarily employed. Often part of the labor is done by land-owning peasants who own holdings so small that a considerable amount of their time can be hired out.

Even where the big land owner is not an expert

farmer he is likely to cultivate his land somewhat better than the peasant. He can afford better machinery and enough draft animals for deeper plowing. He is not hampered by small fields or by the necessity of consulting his neighbors as to what he shall plant. In many parts of Russia, before the war, the owners of the big estates gave but little attention to them. They spent their time in Moscow or Petrograd. They had so much land that they could live extravagantly without good management. Even so, prewar statistics show yields per acre for the large estates greater, in every section of Russia, than those of peasant farms, the difference in most cases being from 10 to 20 per cent. The average output per man employed on the large estates exceeded that on peasant farms by a still greater margin. The estate owner maintains only enough labor to handle the land. A good deal of the time of the peasant is wasted because he has not land, machinery, or animals to balance properly his own labor.

Far greater, however, was the superiority of large-scale farming in the cases where the owner put real energy and intelligence into the operation. Especially among the Poles a very considerable proportion of the big proprietors were good farmers, who gave personal attention to their estates, living on them all the year or at least during the crop season. Many of them studied advanced agricultural methods in schools of their own country or of Germany and western Europe. They not only used good machinery, equipment and live stock, but were often highly expert in the rotation of crops, selection of seed, drainage and use of fertilizers. The greatest degree of efficiency was attained in Posen and West Prussia — those parts of Germany which have now gone to Poland. Here, of course, German influence entered. Poles, however, owned more of the big proper-

ties than Germans did, and in many cases operated them quite as well as their Teutonic neighbors.

The only country for which postwar statistics of crop yields for large and small properties separately are available is Poland. Despite the fact that the war tended to reduce the efficiency of the former more than that of the latter, the official figures for 1921 show yields of the principal crops considerably higher for large estates than for peasant farms. The difference ranges in the various sections from about 5 to 25 per cent, averaging about 10 per cent.

Notwithstanding the superiority, and in some cases the very decided superiority, of large-scale farming in eastern Europe over peasant farming, the big estate now seems doomed. It is difficult for an American not to sympathize with the peasants in their demand that the great landed properties be broken up. In most cases, the big properties have not been built up by the efficiency of their owners but are inheritances from the time when might gave right, when the peasant was a serf with no political rights, with hardly anything he could call his own. Were land abundant the peasant might have less ground for looking covetously at the holdings of the noble. With land hunger ever predominant in his consciousness his attitude is but natural.

The gain, or at least the immediate gain, to the peasant from the breaking up of the large estates is not likely to be so great as he fondly hopes. In the first place, the proportion of the arable land held by such estates is not so high as is frequently supposed. In Poland, for example, while approximately 40 per cent of the total land area was owned before the war by the big proprietors, their holdings included only about 25 per cent of the total arable land. Figures for Russia and other countries of eastern Europe were not very far

different. The greater part of the forests, apart from those owned by the state, belonged to the nobility. Forests constituted a very large fraction of their land, while the peasant holdings consisted mostly of cultivated lands and pastures. In the second place, the land-owning peasant — especially the "little lander," to use a Polish phrase — who looks for increase of his holdings by the dividing of the big estates, is apt to underestimate the amount of land which must go to the landless peasants who are now hired as laborers. Altho, as already stated, there was on the large properties more land per man employed than on the peasant farms, nevertheless the laborers on the estates would necessarily take up a large fraction of their area. Finally, in those parts of eastern Europe which have suffered the greatest losses of machinery and live stock, the peasant is likely to find it difficult at first to cultivate much additional land. Of course, it is hoped that this condition will be merely temporary. It is noteworthy, however, that the eagerness of the peasants in Poland to push through immediately the partition of the big estates has been decidedly dampened by the high cost of equipping additional land.

The end of the big land holdings in Russia came quickly, rudely and without system. With the outbreak of revolution the peasants simply seized the land, appropriated the neighboring estates and divided them among the landless and land-holding peasants according to the will of the group or perhaps in certain cases according to the right of strength. They did not wait for formal methods, for laws and decrees and officials from Moscow. The question of compensation to the owners was not raised. The central Bolshevik government at Moscow had the theory that the big estates should be made into communal farms, but the peasants did not

fall in with that way of thinking. A limited number of communal farms were put in operation, but their efficiency proved very low and many of them have since ceased to operate. If general political conditions in Russia once become stable it is quite possible that efforts may be made to distribute more fairly among the peasants the land formerly held by the big owners. Probably the practice of periodical redistribution will gradually cease. As nearly as can be ascertained from the very inadequate information coming out of Russia, the practice has begun to wane since the revolution. The peasants have pretty generally set their hearts on permanent ownership of the land they till. It is to be hoped also that the general upheaval may ultimately result in a thoro-going regrouping of the land holdings such that each peasant will get his land in a single piece. Comparatively little has thus far been done in this direction since the war.

In Poland a law providing in principle for the breaking up of the big estates was passed in 1919, but the detailed measures necessary for carrying out the change, especially as regards compensation of owners and financing of purchases by the peasants, have not yet been fully worked out. A certain number of estates, which belonged to the former Russian government and which were taken over by the Polish government, have been parceled out, and also a small number of estates of private owners which were found to be neglected or inefficiently cultivated. Agricultural and economic experts in Poland have hoped that in connection with the division of the large estates a regrouping of the scattered peasant holdings could be brought about. As a condition of receiving part of a large property, the peasant might be required to give up all or most of his scattered strips to his neighbors, so that in the end he would

possess a somewhat greater amount of land than before and have it in one piece. It is perhaps partly by reason of the fact that the peasants realized the desirability of accomplishing this regrouping at the same time with the partitioning of the big estates that the latter itself has gone so slowly. It is evident that a scientific and just rearrangement of a multitude of land holdings is a task requiring much time and skill.

In Roumania, a law providing for the parcelation of large properties was enacted very soon after the armistice, and it has already been carried out to a much greater extent than in Poland. In Roumania, however, the former owners are permitted to retain larger tracts than is proposed in Poland. It is difficult to get accurate information as to the effects of the redistribution of land in Roumania. Government regulation of prices and of grain export, and disorganization of the railroads, have tended to restrict agricultural production, and among the complex factors affecting the situation the influence of the change in land ownership can hardly be traced.

In fact, throughout eastern Europe there are so many abnormal conditions of political and economic life that one can scarcely expect to be able to demonstrate the good or evil effects of the so-called agrarian reform for a long time to come. One is forced to fall back chiefly on general reasoning and psychology. One would naturally expect that the immediate effect of a parcelation of the big estates among the peasants would be a diminution of production. Apart from the fact that the peasants in general are less efficient farmers than the large proprietors and that small holdings lack certain advantages in methods that the large holdings enjoy, the process of distribution, especially if carried out rapidly, must involve in itself a certain amount of disorganization. During it there are likely to be lands left

unused for a time; even crops already planted may fail to be harvested. On the other hand it is quite possible that the ultimate effect of the parceling of the big estates, especially when combined with an increase in political power for the peasant class, may prove beneficial to production. Even a small increase in the amount of land he holds might be expected to put new life and hope into the peasant's mind. Whereas with ten acres he could never hope to make progress, to raise his standard of living, to find means to educate his family, with twelve acres he may see the possibility of getting ahead in life. He may feel a new ambition. He may work harder than before. He may give more thought to methods of farming, and venture new experiments. When this direct effect of larger peasant holdings is combined with the influence of the possession of new political power by the peasants, to which allusion has already been made, it may readily make in the course of time for a very real improvement in the agricultural methods of the masses of eastern Europe — an improvement more than sufficient to offset the loss of the expert direction of the big estates and of the advantages of large-scale production.

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AN EXTENSION OF VALUE THEORY

SUMMARY

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NEVER in the history of industrial society was value a subject of more vital interest than it is today. For a quarter of a century we have had a movement in prices which has emphasized anew the importance of the general principles underlying the causes of their rise and fall. Simultaneously the ever-growing technological and legal complexity of the industrial world has given rise to a number of new problems calling for pecuniary valuation. We have witnessed an industrial revolution during the last forty years. The consequences of that revolution for productive output, for capital accumulation, and for the development of new institutions, are just beginning to dawn upon us. One of its manifestations touches the field of value and valuation. The development of public control in the sense which that term connotes today, the taxation of income, the growth of the institution of accounting, the development of modern management both in the financial conduct of the corporation and in the supervision and direction of industrial plants, have brought into being a set of conditions which call for pecuniary valuation.

Yet the theory of value which has occupied the central place in economics since the days of Adam Smith is moribund. It is no longer an infectious subject, and a full decade has elapsed since any formal treatise on value has appeared in America. The distrust of the body of doctrine which has constituted traditional value theory during the last thirty years is not limited to students and to bumptious young economists who are indulging their hypercritical propensities. The latest European work on general economic theory begins with this unqualified declaration. "In my economic studies I long ago reached the conclusion that all the old value theory, so-called, with its endless terminological controversies and its fruitless scholasticism, is superfluous ballast of which economic theory must rid itself." [1] Such an utterance from a scholar of Cassel's standing commands respect. What he means by this terse and well-poised statement is that the controversies over marginal utility and its relation to value were futile. Economists have made an excursion into a land which gave promise but which has turned out to be barren of positive results — unless the proof that the land is barren and that it is useless to spend further time upon it be taken as an accomplishment worth while. In the eyes of the faithful even the forty years during which the children of Israel wandered in the wilderness were well spent.

It was half a century after Adam Smith before Ricardo revived the theory of value. The result was a body of literature which is still the solid core of English economic theory. Another fifty years elapsed before Jevons, in 1871, introduced the doctrine that marginal utility is the final determinant of value. This movement intrigued the minds of two generations of thinkers.

1. Cassel, Theoretische Sozialökonomie, p. v.

There is reason to believe that our times will again see a renascence of value theory. It is the purpose of this article to set forth the grounds for that belief, and to indicate the direction which the new development will probably take.

The first task of any theory of value is to formulate a set of generalizations intended to explain the causes of the rise and fall of prices. It should furnish, too, a set of fundamental generalizations concerning the nature of value and the valuation process which could serve as a guide to those who are confronted with problems of pecuniary valuation which arise outside the market. This task value theory has hitherto neglected almost entirely. Finally, a comprehensive theory of value should furnish a touchstone for present-day institutions and their fitness to realize an ideal industrial program.

The first of these three propositions with respect to the scope of value theory will be all but universally accepted by economists, altho the definiteness of the task has been somewhat befogged by the course of economic doctrine during the last thirty years. The second proposition would be less readily accepted. This is due in part to a failure to comprehend its meaning arising out of the economist's neglect of all phases of pecuniary valuation except price. When the economist thinks of value theory as extending beyond the problem of explaining price fluctuations, he usually has in mind the third task, which deals with the ethical implications of economic valuation. The value theory of the last thirty years has done little to illuminate either the causes of price fluctuations, the fitness of our economic institutions to serve ideal ends or the nature of pecuniary valuation in institutions other than the market.

Some economists have proposed to remedy the situa-

tion by ridding economics of the problem of value entirely. They suggest that we abandon the term and confine ourselves to price without further concern about value. They have in mind the first task of value theory set forth above, and insist that we will make more progress toward formulating a set of relevant laws of price if we rid the science of the whole problem of value by burying it. This is the purport of the quotation from Cassel which appears at the beginning of this article. He had expressed himself to the same effect in an earlier work. "It may indeed be said that the vagueness of the term 'value' has induced people to speak on general questions of economic theory in a most careless manner; and from the confusion thus caused the science has greatly suffered.

"The most radical and effective cure for this evil would of course be to do away with the whole theory of value. Fortunately this is quite possible. There is, in fact, no reason at all why we should commence the study of economics by a separate theory of value." [2]

Professor Cassel here proposes to rejuvenate value theory by limiting it to price theory. By this delimitation the attention of economists will be directed away from the whole welter of controversy which grew out of the attempt to base value upon the utilitarian theory of conduct. In this manner he expects to direct the attention of economists to the institution through whose operation values come into being and by whose processes pecuniary value in the sense of price is determined. He realizes that it is only by returning to a study of the market and its processes that we can make price theory helpful and relevant.

Many economists are in full accord with this point of view as regards the reformation of price theory. The

2. Cassel, The Nature and Necessity of Interest, pp. 68, 69.

sooner we turn from the controversies of the old value theory and apply ourselves to a study of markets and market technique, the better will it be for price theory. Prices are the grist which markets grind; they are relative to market processes. Markets are institutions of great variety and complexity, with no such simple mechanism as was assumed by the traditional value theory. Not until we realize this and address ourselves to a study of their technique and the actual course of causation upon the various markets will we make any further advance in price theory.

The positive results which may be expected from such an attack are well illustrated by Cassel's treatment of the problem of the rate of interest. By attacking interest as a price problem he succeeded in discussing the whole subject within the short range of ninety pages despite the fact that he was still preoccupied with proving to the socialists that we could never have a society in which interest would not exist. All that is needed to make his work in that field complete is to extend the study of the forces which determine the market rate to all the markets for capital. Cassel discusses only the factors which govern the rate of interest on money lent for long periods, such as first mortgage loans on real property. If we had similar studies of the forces which govern the rate for call loans, for ordinary bank loans, for one to five-year notes, and for long-term bonds, we should have all that the economist needs to know about the rate of interest.

With this example before us we need to make similar investigations of the various types of markets for commodities and services. When we have acquainted ourselves with the different sorts of markets which exist today and with their varying technique, we may be able to make significant groupings and classifications of those

markets. Such a study should give us helpful generalizations or laws concerning the causes which underlie the rise and the fall of prices in each of these groups. It should yield others concerning the cause of price movements in all markets. It is safe to prophesy that there will be small place in the literature which grows out of these investigations for the subject-matter and the terminology of the older controversies over value theory.

So much concerning the price theory of the future is pretty clearly established in the minds of economists. There will be great activity in the field during the next decade. The concrete studies in the technique of markets must furnish the facts out of which the laws of a more adequate theory of prices will be formulated. It is not necessary, then, to elaborate the statement that value theory in the sense of price theory will be rejuvenated in the near future.

But economic conduct is not motivated by price alone. Neither is the problem of price the whole of the field of valuation. "That Industrial Revolution," as Marshall puts it, "which has far outdone the changes of a century ago in both rapidity and breadth of movement" has made value a term of many meanings, even in the pecuniary field. An adequate theory of value for modern economics must extend beyond the realm of price and include all the problems of pecuniary valuation which our industrial process presents. These values are not special cases of price. They are ofttimes necessitated by the inadequacy of price to serve as a basis of rational conduct. They arise out of a type of situation analogous to that which occasions the more familiar types of economic valuation.

The problem of economic valuation grows out of the fact that a complete comprehension of the physical qualities of material objects is oftentimes not adequate

to warrant overt conduct, but must be supplemented and reconstructed from the economic point of view before the individual is free to proceed with the rational ordering of his conduct.[3] The capacity of a material object to satisfy an end which appears in the form of a felt want is utility. One may have complete knowledge of the various ends which material objects can satisfy. But that does not yet warrant him in proceeding to overt conduct if such useful objects are scarce. Before one can proceed to use these objects they must be evaluated. When such evaluations are made by individuals they result in the subjective values of the Austrian School. When they are made on the market and come to expression in terms of a standard quantitative unit, they constitute price. The price, or market value, is something different from and objective to the utilities of the physical object.

Just so a knowledge of price is oftentimes inadequate to warrant economic conduct. When this situation arises, resort must be had to other and further methods of pecuniary valuation. The market, with its scale of prices, does not always give the information which is needed as a basis for rational economic conduct. All such valuations outside the market which come to expression in money terms are pecuniary valuations which lie beyond the sphere of price. The very fact that market value is the phenomenon which occasions the necessity for these further valuations proves that they are independent. Prices are merely the problem phenomenon which these other phases of pecuniary valuation attempt to resolve for their own ends with their own technique.

The pecuniary valuations other than price are independent values just as the economic values of useful

3. Cf. Valuation as a Logical Process, by H. W. Stuart; Studies in Logical Theory, by John Dewey, p. 231.

physical objects are of a different nature from their utilities, their fitness to satisfy wants. The value of the objects is something different from their utilities, even tho there would be no occasion to value them were it not that they had utilities. Just so the evaluations which are necessitated by the fact that commodities have market values present the necessity for valuations which are themselves not market values. The mere fact that they would not exist if there were no markets in no wise makes them identical with market values. Whenever any set of objective facts, whether they be facts relating to physical property or facts relating to price, is insufficient to warrant overt action, the necessity for further evaluation arises.

Two illustrations will serve to clarify this. The bond market offers the investor a bond bearing 4 per cent interest due in twenty years at $78, and a bond bearing 5 per cent interest due in twenty-five years at $86. The security of the two bonds, both as to principal and income, is equally good. In fact they are issued under the same mortgage and have equal rights against both property and income of the issuing corporation. The mere existence of these two prices does not warrant the investment in either one indifferently. It is necessary to know which of these bonds has the greater value. If one is willing to invest in a bond of this type at 6 per cent, an actuarial valuation will show that the 5 per cent bond is actually worth $10.25 more than the 4 per cent one. The difference in their market values is $8. The investor will, therefore, purchase the 5 per cent bond. At the market price the 4 per cent bond yields 5⅞ per cent, while the 5 per cent bond yields almost 6¼ per cent. They would sell at $76.89 and $87.14 respectively if both sold to yield exactly 6 per cent.

A similar quandary is presented by the presence of

two machines or other units of productive plant, which serve precisely the same physical end but have different market values. A manager has an electric generator whose second-hand market value exceeds the cost of removal by $50,000. The market offers a generator of improved type with exactly the same capacity at a cost of $250,000.

Is he warranted in replacing the old generator with a new one? The answer to that question depends upon a further pecuniary valuation of the relative economic efficiency of the two generators. If the difference in their value is more than $200,000 (the difference in their market values) the manager is warranted in discarding the old generator and purchasing a new one; if it is less than this amount he will retain his old machine. The difference in the value of the two machines considered as productive units may be $300,000, or it may be only $50,000. There is no certainty that it will be equal to the difference in their market values. The market value results from the operation of all the conditions which present themselves upon the market for electric generators; the manager's valuation results from a consideration of the factors which determine the relative economic value of the two units in the particular industrial organization which he is supervising and directing. Knowledge of market values is one of the facts which he must have in planning a rational course of procedure, but the market does not give him a set of values which are adequate to warrant that procedure without further and independent valuations.

The last example falls within the general field of depreciation. The problem of valuation presented by depreciation of plant and equipment is raised perhaps most directly in connection with the determination of income. It is a sound principle of income determination

that no income arises until full provision has been made out of the gross revenues for maintaining the capital intact; in other words, until full provision has been made for depreciation of plant and equipment. Depreciation is universally defined as lessening in value. Yet nowhere have the accountants, who are the technical experts in the matter of income procedure, accepted market value as a criterion of the lessening in value of plant. They have developed their own methods of valuation, and these methods have attained to objectivity and to independent validity. They are becoming an institution of valuation. This particular phase of the value problem will be taken up for separate and complete discussion later.

Even in the taking of private property under the right of eminent domain the property is not subjected to the test of the market by being offered and sold for whatever price it will fetch. Its full and just value, which must serve as a basis for compensation to the owner, is determined by a judicial procedure according to rules, principles, and precedents which have been developed over some centuries by a gradual process of evolution. The value finally arrived at is binding and is in every way objective. It is not market value; at best it is a hypothetical market value.

There are at least four groups of these pecuniary valuations outside the market which are not cases of price, but are independent values.

1. Valuations of property for the purpose of exercising public control over prices, as in public utility rates. The valuation of property for purposes of capitalization is an analogous case.

2. Valuation of property for purposes of administering the principles of justice and equity which control the rights of property and of contract.

3. Valuations of property for purposes of taxation. These may be either in the nature of the valuation which shall serve as a direct basis for the tax levy; or they may arise incident to the determination of income when taxes are spread on the basis of income.

4. Valuations of property which arise in connection with industrial and financial management. These are necessitated by the fact that the valuations of the market are not adequate for the rational direction of industrial and financial conduct, if this is to be carried through most economically and efficiently.

Perhaps these four groups could be subsumed under two heads. The first three groups present valuations which are necessitated by the general problem of public control. They come to expression as findings of a judicial or administrative body and as such have binding force. The last group is concerned with those problems of valuation that arise in private industry in its pursuit of profit.

In addition to these there is the problem of imputation or allocation of values, revenues, and expenses, which cuts across this classification and may arise in connection with any of these groups. Not only must courts and commissions find a fair value for purposes of rate-making, but they must frequently divide that value between the property used for interstate business and that used for intrastate business. Oftentimes they are also called upon to further subdivide either the inter- or intrastate property as between that which is used for carrying freight and that used for carrying passengers. Likewise for purposes of taxation not only must the assessing authorities find, in the case of an electric light and power company whose hydroelectric plants are located in one part of a state and whose product is consumed in the manufacturing towns in another part, the

fair cash value of that property for purposes of taxation; but they must parcel that value out between the various political units in which the physical property of the company is situated. The imputation of investment to various productive activities is the most difficult task presented by cost accounting.

Revenues, as well as expenses and values, present the necessity for apportionment. When a state levies taxes upon the gross earnings of a railroad which operates through half a dozen states; when the rights of the stockholders of a lessor road to receive rental depend upon the gross earnings of a portion of the road, while the great mass of traffic is joint to the lessor and lessee roads — in short, whenever the physical plant is a unit which renders an indivisible service, while the ownership or political jurisdiction is divided, this problem of imputing revenues, expenses, and values presents itself as a value problem. That is to say it presents a situation in which a knowledge of the physical factors or of the economic factors pertaining to the situation as a whole is not an adequate basis for practical conduct. Before the judicial body or the manager is prepared to decree action there must be a further judgment process which shall issue in a conclusion expressed in quantitative pecuniary terms.

Valuation for purposes of rate-making would perhaps strike the general economist as having most clearly attained to definite institutional standing. It possesses a literature, a technique, a set of principles having the force of precedent, and judicial or administrative bodies which consider themselves bound by these principles and which have power to enforce these valuations upon industrial society. A certain valuation engineer put the thing naïvely but in most illuminating fashion when he said that upon entering the valuation section of the In-

terstate Commerce Commission he had sought to inform himself regarding the problem of value by reading every available thing that the economists had written upon the subject. After completing this laudable undertaking he remarked that he knew nothing about value when he began, and not very much when he had finished, but he was certain that the value about which the economist was talking was not what he and his colleagues were seeking in the valuation of the railroads of the United States.

When a public utility commission is seeking a fair value upon which it may base rates, it is not looking for a price. It does not ask itself what this property is actually selling for upon the market. As one commission puts it in a decision involving rates: "When we speak of 'fair value' in a rate-making case, we find we must of necessity acquire an entirely new and distinct conception of this term 'value.' It is not a composite of all other values. Nor is it of necessity merely a modification of any of the foregoing conceptions of value, any more than a newly discovered star in the firmament is a composite of all other stars in the firmament, or a modification of any one of the same. But it is an entirely new and distinct 'value.' It may in some respects partake of the characteristics of some other values or of all other values, but nevertheless it is a conception of value for a different purpose, and is as readily susceptible of ascertainment independently of any other particular value, as such other particular value is susceptible of ascertainment independently of it." [4]

This commission is clear as to the distinctive character of the value problem with which it is confronted in a rate case. It would surely differ from one writer

4. Decision of Public Service Commission of Maryland in the Matter of the Chesapeake & Potomac Telephone Co., of Baltimore, p. 22 (by Towers, Chairman, opinion filed March 8, 1918).

who asserts that "to ascertain what the word 'value' means, we must do what we should do with any other word under any other circumstances, that is, go to the dictionaries." This body realizes that the control of rates and the method of valuation suited to function for that purpose is a thing apart whose definition has in all likelihood not gotten into the standard dictionaries. It would certainly not accept the definition compounded by the above-mentioned writer from the dictionary. "Value," he says, "will be taken in its established sense as meaning the importance of the thing in question, measured by the amount of other commodities (commonly represented by money) for which it can be exchanged in open market, or the price equivalent to its intrinsic worth, which shall be a real equivalent." This commission realizes that there is no such thing as "intrinsic worth"; there is only the power to evoke a certain price upon the market or the power to evoke a certain expression of pecuniary value from some other institution like a court or a commission.

The notion that properties contain a value which is the same in all institutions is the source of much of the confusion which now characterizes valuation for purposes of rate-making. Commissions in such valuations do not seek an absolute quality of the property which may be denominated its value; they are rather imposing upon the property a fair value which shall express in pecuniary terms all the equitable considerations bearing upon the determination of the mutual rights of public and owner. In arriving at that value the courts and commissions make use of certain market facts, both past and present, but what they are seeking is not a market value, but something different. It is like market value in that it is formulated to realize a purpose in the nature of an end to be attained, just as the market seeks

an adjustment of supply and demand. But it is a thing *sui generis*. It has no meaning nor can it be understood except in terms of the purposes of public regulation and in terms of the technique which has been developed for arriving at a pecuniary value which shall serve that purpose.

The conflicting theories concerning the proper method for arriving at fair value vary just because the purposes which the evaluators have in mind are different. If those who are charged with making these valuations, both for the public and for the company, told us with frankness what they are seeking to accomplish their processes of valuation would be more intelligible. The extreme proponents of the companies usually seek a theory of valuation which keeps public utility investment and promotion within the field of business enterprise. What the extremists on the public side desire is a payment for the service which shall in no wise exceed what would have to be paid under a socialist régime which was as efficient in operation as is private management. These men would base value upon investment, and would allow no increment for the increases in land values, for changes in the price level, or for any other cause. They would remove the ownership of public utilities entirely from the field of business enterprise. They would make it merely a sound investment and nothing more.

It is no part of this discussion to indicate which of these two groups is right; that is largely a matter of sound public policy. One of the groups is trying to invest public utility property with all the functions which private property in any business enjoys. The other group is trying to divest property in public utilities of a large part of the function which private property in other productive plants enjoys. The difficulty in prescribing an adequate and satisfactory method of valu-

ation which is acceptable to the courts is that they have not yet decided just what limitations are to be placed upon the right of private property in plants devoted to the rendering of public utility services.

Each of these separate phases of pecuniary valuation has a distinct function in industrial process. If the economist would understand the workings of industrial society he must master the nature and technique of the processes by which these values are created. He will never understand completely the part that value plays in industrial process until he analyzes these other values as well as price.

The consideration of these various manifestations of value has brought into prominence two characteristics of the problem of valuation which deserve further consideration. It is clear that all valuation is purposive; and that pecuniary values derive their sanction from their fitness to function in the realization of ends. Each type of value is mediated by the end which occasioned the judgment process by which it was created. It is equally clear that all pecuniary values which are not mere subjective valuations of the individual, but which attain to social validity, are institutional products. It is doubtful whether there are any objective values which are not institutional in their origin.

The purposive nature of the valuation process is beautifully illustrated by the mathematical formula employed in the determination of the present value of a series of future incomes. The mathematics of valuation has become an institution, and actuaries form an organized profession skilled in its use. A valuation derived through the use of this formula can be sustained in any court by the testimony of professional actuaries who are institutionally accredited.

It is always an interesting exercise to set students

the task of explaining why the value of an annuity of $802 for twenty years is $10,000 on a 5 per cent basis; and why it declines in values $302 in the first year, $469 in the tenth year, and $764 in the last year of its life. Their answer will probably be that the formula gives a value of $10,000 at the beginning of the series and that it shows a decline in value of $302 in the first year, $469 in the tenth, and $764 in the last year. But that merely assumes that the mathematician of valuation has answered the problem and embodied his answer in the formula. We are seeking the principle which underlies and validates that formula.

The reason why $10,000 is the value of the annuity is that this figure will enable the purchaser of the annuity to accumulate his original investment out of the $16,040 paid him during the twenty years and to receive in each year an additional amount which is exactly 5 per cent of the remaining value. In the first year, for example, the owner regards $500 or 5 per cent of $10,000 as income. This leaves $302 as a return of his investment; the value of his annuity at the end of that year has decreased by this amount.

The second year he counts $484, or 5 per cent of the remaining value, as income while the other $318 is considered return of investment and decline in value. And so he proceeds throughout the twenty years. At the beginning of the tenth year the value is $6665 and he considers $333 of the $802 which he receives as income and $469 as decline in value.

His revaluation from year to year is obviously directed to the end of maintaining a uniform percentage between that portion of the $802 which is to be considered income and the remaining value of the annuity. It is just this uniform ratio of 5 per cent which the mathematician of valuation aims to attain with his formula.

Starting with the twenty annual incomes of $802 and the 5 per cent ratio he arrives at an original value and a succession of declines in value for the various years which maintains this ratio.

This is more clearly illustrated if the series of incomes is not uniform. A series beginning with $1,000 and gradually decreasing by $25 each year to $525 in the twentieth year will also have a present value of exactly $10,000. The application of the formula to this case will show a uniform decline in value of $500 per year throughout and not a gradually increasing amount, as in the case of the annuity of $802. The difference in the rate at which the value of these two annuities declines is arranged to secure a uniform per cent of income upon the remaining value in each year.

The purposiveness of this procedure is still more strikingly illustrated if we assume a series similar except that the income falls to $200 in the tenth year, and is somewhat larger in each of the other years. This series would also have a value of $10,000 at the beginning. Its decline during the first year would be somewhat more than $500, as it would in every other year, except the tenth. In that year the application of the formula of valuation would result in an increase or appreciation in value of about $100. Obviously the value of the annuity is increased in this year when the income is smaller than usual in order to preserve the income at 5 per cent of the remaining value, even in that year.

Had the payment in the tenth year been unusually large, say $1500, and that in each of the other years correspondingly smaller the formula would give a decline in value of almost $1200 in that year and so would have reduced the amount remaining as income to about $300, or 5 per cent on the remaining value.

Clearly the whole procedure is purposive, and the

formula is merely a symbolic representation of the process of valuation which is necessary to realize that purpose. If the purchaser changes his decision and concludes that he will divide the payment into two portions, one of which represents return of principal, while the other is at all times 6 per cent of the remaining value of the annuity, its value will become less than $10,000. The decrease in value is directly due to the fact that the purchaser has substituted a new end for the former one; every modification of his end means a change in the value of his means.

The discussion of valuation for rate-making at a previous point in this paper indicated the purposive nature of that procedure. Likewise, in valuing property for purposes of taxation the object sought in fixing the assessed value which forms the basis of the levy is the just distribution of the burden of supporting government. Even where the tax purports to be upon the value of the property, the assessing body will commonly take congizance of its power to produce income. Thus the Pere Marquette Railroad has been for years assessed at thirty million dollars, despite the fact that its property was valued by the State Railroad Commission at over fifty millions, and that the same commission approved an issue of securities at the reorganization of the properties amounting to over $100,000,000.

Since all values are relative to and mediated by some purpose, it is entirely natural that value should have become a term of many meanings. The notion of an absolute value still persists, especially among lawyers and engineers. Among the lawyers this no longer takes the crude form of a supposed "intrinsic value" which inheres in the object as do physical qualities, but rather of an attribute which property derives from some institution of pecuniary valuation which has the force of

precedent. Most commonly the value to which the lawyer appeals is market value. Sometimes it is a value arrived at by the procedure which has been prescribed by the courts when property is taken under the right of eminent domain.

It follows from this analysis of the nature of value and the processes of valuation that this attitude is logically unsound. There may be many pecuniary values for the same object. These may all be valid, each within the jurisdiction of the institution which made it.

It follows, too, that no adequate understanding of the processes of valuation and of the causes for changes in value can be had without taking into the reckoning the technique of valuation which has come to be institutionally recognized. As Professor Charles H. Cooley says,[5] "It would be as reasonable to attempt to explain the theology of St. Thomas Aquinas, or the institutes of Calvin, by the immediate working of religious instinct as to explain the market values of the present time by the immediate working of natural wants." Likewise, this would be just as reasonable as to attempt to explain the nature of fair value for purposes of rate-making by reference to the definitions of value found in economic treatises which limited their concern with value to the field of market price.

It follows also that the market has not now, nor has it ever had, a monopoly of pecuniary valuation. The fact that the market was the first institution which made pecuniary valuations; and that the courts cast the problem of rendering just compensation to an owner whose property was taken by the state under the right of eminent domain in hypothetical market terms does not limit the term value to the result of market operations. The concept of *a* market value is itself an ab-

5. Cooley, "Institutional Nature of Pecuniary Valuation," p. 543, American Journal of Sociology, January, 1913.

straction. The valuations of the market are no more absolute and have no greater validity than those which result from the workings of any other institution of pecuniary valuation. And since the market itself developed and attained to influence and recognition only by an historical process of evolution, it is legitimate in no more fundamental sense than are other institutions of valuation which grew up later, or still others yet to come. At any time too, functions which have been left to the market hitherto may be transferred to other institutions of pecuniary valuation.

The market does not, of necessity, serve satisfactorily all the ends whose attainment we now leave to its functioning. Particularly must we scrutinize with the greatest care the assumption so complacently made by many economists that a set of market prices which brings about a proper coördination of the factors of production effects an ideal distribution of product. In adjusting production to demand the market places at the disposal of some of the owners of the factors an amount of economic power to command product which is greater than necessary to evoke the productive contribution and which is not in harmony with our ideal system of distribution. It is quite conceivable that we may establish other institutions of valuation which shall correct the workings of the market in such manner as to bring our total industrial process into closer conformity with what we consider a just distribution of income. A tax on differential profits like our excess profits tax is just such an institution. There is no reason for expecting that a set of values which is adequate and satisfactory for the motivation of production shall likewise be adequate and satisfactory for effecting a fair distribution of the product.

Perhaps the implications of this theory of value are

more significant for the problems of imputation than for any other single set of problems. Take the common case of imputing the value of property used in transporting freight and passengers to these two classes of service. Pretty much all the discussions of the lawyers and of their experts, the engineers and the operating men, consist of an attempt to base the imputation of values, as well as common expenses, upon some physical factors, such as train miles, or car miles, or tons of passengers and freight transported. They attempt to base their allocations upon factors which are objectively given in the form of physical data which can be quantitatively determined. If what is here said is true, the procedure should rather be to look forward to the end which is to be attained in this imputation. Then the imputation which will finally be made will be the one which serves to accomplish that end. There will still be limiting physical factors, because the end must inevitably be conceived and worked out in terms of the available means. But where the physical means allow a wide latitude as regards possible ends, the very heart of the valuation becomes the clearly attained consciousness of the desired end. As a matter of fact the imputation is, in the last analysis, made on this basis anyhow; but a deal of time and energy is wasted and a great mass of verbiage which darkens counsel by words without wisdom is injected into the discussion by a failure to realize the fundamental nature of the value problem.

Some men realize this perfectly, as witness the following statement of a practical railroad man. "These computations, then, consist of two processes. One is allocation, which is the ascertainment of facts; the other is apportionment, which is the determination of policy.... In determining the propriety of proposed bases of apportionment we must have an eye, not only to the facts

studied, but to the purpose of the study. It is possible, and indeed probable, that if two cost studies are made of the same traffic on the same railroad at the same time, one for one purpose and the other for another, different bases of apportionment of the same joint expenses should be used." [6]

Finally, this point of view concerning the fundamental nature of value gives us a touchstone for the values created by the workings of the institutions of pecuniary valuation. The student was never quite satisfied with the statement that value was price. To him value always seemed something more fundamental, something which furnished a criterion for passing judgment upon prices. Once we recognize that all valuation is purposive we have a test for the validity and sufficiency of any institution of pecuniary valuation like the market or the court sitting in a rate case. If the values which result from the working of these institutions function perfectly to realize the end which they are intended to serve they are true values. If not, the institutions which created them must be modified or supplemented by new ones.

Thus far the economist has held aloof from this field because the problems have not fallen within the bounds of traditional value theory. As a result both the public and the economist have suffered loss. He is better equipped and can bring to bear upon these problems more that is relevant, both as to point of view and method, than the people who are essaying to solve them today. If he brings to bear upon them his understanding of economic relations and his method of analysis, we are certain to have a renascence of value theory.

DAVID FRIDAY.

6. Allen S. Olmstead, Annals American Academy, vol. 63, pp. 218, 219.

INTERNATIONAL TRADE UNDER DEPRECIATED PAPER. THE UNITED STATES, 1862–79

SUMMARY

I. The greenback currency period affords a favorable opportunity for a statistical investigation of international trade under depreciated paper. — This investigation to be correlated with recently advanced theory, 221. — II. The international account of the United States from 1862 to 1879, 230. — III. Contrast of changes in the value of gold in the United States with contemporaneous changes in foreign countries, 235. — Dependence of these changes on international loans, 241. — IV. Fluctuations in the merchandise balance and the relation of these to loans and the value of gold, 245. — V. Comparative prices of export, import and domestic commodities and their relation to fluctuations in the value of gold, 249. — Contrast with English prices, 258. — VI. Comparison of wages in industries affected by movements in the value of gold with those unaffected by such movements, 265. — VII. Conclusion, 272.

I. The Problem

This article presents the results of a statistical study of prices in the United States in the greenback period, 1862–79. The purpose of the study was to subject to an inductive test the theory of international trade under depreciated paper advanced by Professor Taussig in the issue of this Journal for May, 1917.[1] In developing his theory Professor Taussig assumed hypothetical conditions such as were actually realized to a very considerable degree in the international trade of the United States from 1862 to 1879, when the inconvertible greenbacks were the basis of our monetary system. A favorable opportunity was thus presented for submitting the

1. "International Trade Under Depreciated Paper. A Contribution to Theory," Quarterly Journal of Economics, vol. xxxi, No. 3, pp. 380 et seq.

theory to the test of historical data. The price statistics available for the study were good, and were gathered in convenient form in Wesley C. Mitchell's book on *Gold, Wages, and Prices Under the Greenback Standard.* Other necessary statistics were derived from the Reports on Commerce and Navigation and the reports of the Secretary of the Treasury for the period covered by the study.

The problem is this: by what means and in what manner is equilibrium of payments maintained in the course of international trade between countries one of which is on an inconvertible paper monetary basis; or, having been disturbed, by what means and in what manner is equilibrium again restored? In such a case equilibrium cannot be established by the flow of gold hither and yon in the way made familiar by the classical theory of international trade. Professor Taussig suggests that under inconvertible paper it is attained by a shifting in the commodity side of the price equation in lieu of a shifting in the money side. The ultimate adjustment is reached through a series of transitional price changes, affecting in contrasting ways export, import and domestic commodities, and operating to increase or decrease the aggregate of commodities exchanged within the country, and as a consequence, lowering or raising the whole price level to a point which will maintain equilibrium.

The method and sequence of events leading up to this consummation may perhaps best be illustrated by means of the example used in the original exposition. Assume that the trade between two countries, Great Britain and the United States, is simple (that is, a trade in commodity merchandise only) and is at equilibrium, the specie value of the imports balancing the specie value of the exports; that Great Britain has a gold monetary standard while the United States is using an inconvertible

paper currency; that the premium on gold in the United States measures the real depreciation of its paper as shown by the advance in general prices beyond the level at which they would be under a gold standard; that a settled state of trade exists; that this settled state is then disturbed through heavy and continuous borrowing by the United States in Great Britain.

The train of effects to be expected upon this disturbance would be, in the United States, as follows:

A. Immediate effects:

(1) Increased demand for New York exchange in London, increased supply of sterling exchange in New York.

(2) Fall in sterling exchange in New York.

(3) Fall in the specie premium in the United States. Sterling exchange is, in the circumstances, equivalent to gold, and sterling exchange and the gold premium will fluctuate together.

(4) Fall in the (paper) prices of exported commodities. The prices of these commodities are set in foreign markets in gold. The premium on gold having fallen the (paper) prices of exports must fall with it.

(5) Lowered cost (in U. S. paper) of imported commodities. These are bought in foreign markets for gold (or its equivalent) and it takes less of the paper currency than formerly to buy the same amount of gold and therefore of imported commodities.

(6) Fall of the specie premium as compared with the general price level. In the stage of equilibrium assumed at the outset, the specie premium would have been in accord with the real depreciation of the currency which, in fact, it measured. It is now less. The prices (in paper) of exported commodities have also fallen as compared with the general price level. The same is true of the prices (paper) paid for imported commodities.

B. Transitional effects:

(1) Exporting industries are unprosperous: exports tend to decline as a consequence of lower sale prices (paper).

(2) Importing industries are prosperous: imports tend to increase as a consequence of lower cost prices (paper).

(3) Export trades tend to cultivate the home market, more domestic commodities are made and a larger share of exportable commodities is used and bought at home: import trades develop and more imported commodities come in. The upshot is an increase in the total volume of commodities bought and sold in the United States.

C. Ultimate effects:

(1) A fall in general prices in the United States. The volume of commodities has increased, the money supply (assuming that there have been no new issues of paper) is unchanged: general prices will therefore fall. Even tho the paper money has increased in volume, there will be a fall in general prices relative to the price of gold.

(2) A gain to the people of the United States through lower prices of both domestic and imported goods, money incomes remaining the same throughout.

The course and causes of equilibrating movements with one of the countries on an inconvertible paper monetary basis are distinctly different from those which would obtain if both countries were on a gold basis; the ultimate effects, while different in form, are in substance very much the same.

The resemblances and differences will be evident on a comparison of the sequences of events to be expected under a gold and under a paper régime respectively, a comparison presented in parallel columns herewith.

Sequence of events in the United States when —

Both countries are on a gold basis	*The U. S. is on an inconvertible paper basis*
(1) Sterling exchange falls in New York: New York exchange rises in London.	(1) Sterling exchange falls in New York: New York exchange rises in London.
(2) Influx of gold from Great Britain.	(2) The gold premium (in terms of United States currency) falls as compared with the general price level.
(3) General prices rise, while they fall in Great Britain.	(3) Fall in the (paper) prices obtained for exports: imports obtained more cheaply (in United States currency).
(4) Exports decrease: imports increase.	(4) Exports decrease: imports increase.
(5) Equilibrium restored: General prices higher (if it is assumed that the import of gold has been proportionately greater than the consequent increase in the importation of commodities).	(5) Equilibrium restored (with exchange on a new level). General prices lower (if it is assumed that there have been no new issues of paper money).
(6) Money incomes higher, prices of imported goods lower. The people of the U. S. gain as buyers of imported commodities. The terms of international trade have shifted in their favor.	(6) Money incomes the same; general prices lower. The people of the United States gain as buyers of both imported and domestic commodities. The terms of international trade have shifted in their favor.

With both countries on a gold basis, adjustment toward an equilibrium of the international account is reached by a movement of gold affecting *all* prices; when one country is on an inconvertible paper basis this adjustment takes place, independently of any gold movement, by means of a price adjustment effected by a change in the commodity rather than in the money side of the price equation, this change itself being brought about by movements in foreign exchange which

affect the prices of export, import, and domestic commodities in different ways.

Many of the conditions assumed in the exposition of the theory were actually present in the period from 1862 to 1879. Thus Great Britain was throughout the period upon a gold basis while the United States was using inconvertible paper money. From 1863 to 1874 the United States borrowed heavily and continuously in Great Britain. Other conditions of the hypothesis were largely realized by 1866, when the disturbances caused by the Civil War began to subside. The premium on gold, which during the war had been greater than the general advance in prices, fell rapidly, and late in 1865 reached the level of general prices and measured fairly the real depreciation of the currency. The liquidation brought about by the war tended to simplify international trade and to reduce the complexities which accompany credit operations, so that a state of external trade as "settled" as is ever likely to occur under modern conditions was probably realized in the year or two succeeding the signing of peace in 1865. External trade at this time was simple, composed largely of merchandise (including gold and silver, which are "merchandise" to a country with an inconvertible paper monetary system), while exports and imports approximately balanced each other. The transactions which come under the head of merchandise amounted, in specie values, in the year ending June 30, 1865, to $265,000,000 of imports and $245,000,000 of exports; while for 1866 the figures are $477,000,000 and $450,000,000 respectively.

For the whole period 1862–79, the items of importance for the present purpose entering into the international account of the United States may be grouped as follows: (1) commodity exports and imports; (2)

gold and silver coin and bullion movements; (3) freight payments; (4) sales of ships; (5) loans; (6) interest payments and repayment of loans. Such items as rents, wages, profits, expenditures of tourists, remittances to relatives, the capital of immigrants, insurance, and services of various sorts, proved on investigation either to be offset by counterclaims of the same sort or to offset each other, or were so small as to be negligible. Of the six enumerated important factors in the situation, the fifth, loans, was introduced during the period studied, and eventually in such volume as to dominate the situation. With no other factor can one correlate the shifts in the balance of merchandise (including gold and silver) from a slight annual excess of exports prior to and during the early years of the war, to a very considerable annual excess of imports in the decade 1864 to 1873 (one year excepted), and back again to a large annual excess of exports from 1873 onward. On the other hand the trade movement does correlate closely with this factor of loans. Borrowing on a large scale was initiated in 1863 and severely checked after the panic of 1873. The period as a whole thus presents for consideration and comparison two contrasting situations, in one of which a new factor, borrowing, causes a disturbance of a preëxisting equilibrium, sets in motion equilibrating forces, and is suddenly interrupted to bring about the converse situation, in which the equilibrating forces are evoked by the practical cessation of the borrowing as contrasted with its initiation. The new situation may, therefore, be expected to show the reverse movement to that which appeared in the preceding stage. If it be found that the actual results in the former of the two situations are such as the theory would lead us to expect, such evidence of the validity of the theory as this affords will be immensely strengthened if the results are neutralized

or reversed in the latter. Our problem is to present and compare with theoretical expectation these actual results, the whole situation being brought always to the factor of loans as the touchstone.

A further word of explanation is desirable concerning the differences between the short-range and long-range phenomena. In the period from 1863 to 1873 the immediate, the transitional, and the ultimate effects of borrowing were being worked out synchronously. On the other hand, the cessation of borrowing and the increasing scale of repayment of loans from 1874 to 1878 were evoking, synchronously, just the converse immediate, transitional and ultimate effects. Moreover these several effects in either period tend in some degree to neutralize each other.

Thus the short-range effect of a large new loan placed by the United States in Great Britain is (by its influence upon the exchanges and its tendency to depress the gold premium in the United States) to make imports cheap (in terms of paper currency), and so stimulate imports from Great Britain into the United States; but the long-range effect of increased imports from Great Britain into the United States is to raise prices in Great Britain and to lower them in the United States, and so set up a counter tendency in the movement of merchandise.

The immediate effect of the loan is, again, to lower in the United States the (paper) prices of export commodities, since their price is set in the foreign market in gold and the same amount of gold will be represented by a smaller amount of the paper currency than before the fall in the gold premium. The (paper) prices to consumers of commodities imported into the United States will, as shown above, also fall as a result of the loans, tho less quickly than will the prices of export commodities. The reason for this laggard fall in the prices of imports

is that while imports are obtained at immediately cheaper prices by importers, it takes time for competition to work out its effects in lower prices to consumers, and so the paper prices of import commodities will not respond as rapidly to a change in the gold premium as will those of export commodities, which are affected immediately.

The (paper) prices of import and export commodities having fallen, the prices of domestic commodities will be relatively high. This will hold during the short-range and early transitional periods. But the ultimate effect in the United States is a lowering of all prices, and the prices of domestic commodities, which have been hitherto relatively high, will now tend to fall at a more rapid rate than the prices of export and import commodities, and this effect may even appear as a rise in the prices of the latter.

When, then, borrowing is continued over a long period, the long-range or ultimate effects of the borrowing of former years are working themselves out at the same time as are the short-range effects of borrowing operations only shortly before consummated, and these effects tend to neutralize each other. It is always a question which is the dominant factor. But long-range or ultimate tendencies are disturbed by so many newly-arising phenomena of every sort that their effects can seldom be traced with precision, and the attempt to do so is almost certain to be unsuccessful. On the other hand, short-range effects offer a much more hopeful field, since cause and effect can be more accurately associated and the influence of disturbing factors can be more readily obviated in a short than in a long period.

Whenever, in the period here studied, the scale of borrowings is increased largely, the short-range effects may be expected to dominate the situation for the time being;

whenever borrowings are maintained at an unaccelerated rate the long-range effects are likely to come strongly into play, more especially as the immediate effects of increasing interest payments tend to neutralize the short-range effects of the borrowing operations in the same manner as do the ultimate effects of these borrowings.

When borrowing ceases, and especially when repayment begins, exactly the reverse processes of course tend to establish themselves. It is unnecessary to trace these in exact detail, one simply needs to substitute the effect opposite to that already presented here.

In such a period as that of 1862–79 short-range effects might be expected to be prominent, and ordinarily predominant, since these years were broken in such a way as to present a peculiarly favorable opportunity for the operation of short-range tendencies. Borrowing began on a large scale in 1863 and was maintained for about five years at about the same rate. In 1868–69 it was very largely increased, so that just when the long-range effects might be expected to become dominant short-range effects were given a new impetus. In 1873 occurred a panic, a complete shift in the merchandise balance of the United States, and the relative cessation of borrowing. This just reversed former conditions and again gave predominant importance to short-range effects. Thus throughout the whole period the long-range effects would probably just be beginning to dominate the situation at the end of each of the three stages 1863–68, 1868–73, 1873–78, when their influence would be overthrown by the phenomena of the period succeeding them, whereas transitional effects would be the dominating factor practically throughout, being gradually modified and counteracted, as each period wore on, by the functioning of the long-range forces.

For this reason attention has been largely concentrated on transitional effects. Ultimate effects will be noted only on those dates at the close of the stages above indicated when they may be expected to be dominant.

II. The Trade Balance, 1862–79

Interpretation of the international trade situation from 1862 to 1879 requires first a knowledge of what that situation was. The table on page 231 presents this situation in the form of an international balance sheet, showing merchandise exports and imports, gold and silver coin and bullion movements, freights payable and receivable, sales of ships, net interest payments and repayment of loans. These, as has been pointed out, are the significant items for the period studied. No data exist adequate to permit of even a reasonable conjecture on the quantitative importance of other items; but since such evidence as is available goes to show that the debits and credits of these items of minor importance approximately balanced each other, it seemed best to omit them altogether.

The balance sheet shows:

(1) An approximate balance of total debits and credits, independently ascertained, for the whole period 1860–78. This goes to show that any items omitted were of negligible importance.

(2) After the war years, a tendency appears toward the extinction of a debit or credit balance running a year or two, by a balance of the opposite complexion, lasting for a similar short period only. This means that unsecured credits for any lengthy period were not granted by either party to the international exchange. (1) and (2) together are evidence of the effectiveness of the equilibrating forces.

INTERNATIONAL TRADE BALANCE SHEET (SPECIE VALUES IN THOUSANDS OF DOLLARS)[2]

UNITED STATES IN ACCOUNT WITH FOREIGN NATIONS

	Dr.						Cr.					
Year ending June 30	Merchandise imports	Gold and silver specie and bullion imports	Freights payable	Net interest payments	Repayments on loans	Total debits	Merchandise exports	Gold and silver specie and bullion exports	Freights receivable	Sales of ships	Loans floated	Total credits
1860	$353,616	$8,550	$13,400	$18,000	....	$393,566	$333,575	$66,545	$27,908	....	$15,000	$443,028
1861	289,310	46,339	13,410	18,000	....	367,059	219,553	29,790	17,997	....	10,000	277,340
1862	189,356	16,415	11,349	15,000	$25,000	257,120	190,670	36,886	12,418	$4,710	....	244,684
1863	243,335	9,584	14,317	12,000	25,000	304,236	203,963	64,156	9,860	8,885	....	286,864
1864	316,447	13,115	24,835	15,000	....	369,397	158,837	105,395	6,724	12,034	80,000	362,990
1865	238,745	9,810	17,417	24,000	....	289,972	166,029	69,643	4,956	5,333	75,000	320,961
1866	434,812	10,700	32,247	30,000	....	507,759	348,859	86,043	15,483	....	70,000	520,385
1867	395,761	22,070	30,062	36,000	....	483,893	294,505	60,868	13,079	....	74,000	442,452
1868	357,436	14,188	24,865	42,000	....	437,489	281,951	93,783	12,868	....	76,000	464,602
1869	417,506	19,807	30,051	52,000	7,418	526,782	286,117	57,137	11,429	....	129,500	484,183
1870	435,958	26,419	30,914	61,000	15,240	569,531	392,771	58,154	16,506	....	145,000	612,421
1871	520,223	21,270	36,302	67,000	16,166	660,961	442,819	98,441	17,151	....	116,400	674,811
1872	626,595	13,743	44,541	72,000	14,994	771,873	441,177	79,877	15,139	....	127,400	676,593
1873	642,136	21,480	47,180	78,000	2,815	791,601	522,479	84,608	15,049	....	147,600	769,736
1874	567,406	28,454	40,532	60,000	....	696,392	586,282	66,629	15,713	....	51,000	719,624
1875	533,005	20,900	38,294	63,000	....	655,199	513,442	92,132	13,962	....	20,200	649,736
1876	460,741	15,936	32,113	60,000	50,000	618,790	540,384	56,505	14,839	....	....	611,728
1877	451,323	40,774	32,956	55,000	100,000	680,053	602,474	56,161	15,404	....	....	674,039
1878	437,951	38,437	30,749	45,000	150,000	701,237	694,865	33,739	16,318	....	....	744,922
Grand Total.....						$10,082,910						$9,981,099

2. This balance sheet, the basis of the study, was prepared after a comprehensive examination of sources. All figures are in gold values. Paper prices, where they occurred in the statistics, were reduced to their gold equivalents at the rate of premium on gold prevailing at the period which the quotation covers. Quotations of merchandise and of specie and bullion exports and imports are based on government statistics, and the figures on sales of ships are derived from government reports. All other figures are estimates computed from unofficial sources such as the Commercial and Financial Chronicle, Bankers' Magazine, London Economist. Each set of figures has been determined quite independently of any other.

(3) The trade in merchandise is sharply divisible into two contrasting periods preceded by a third — the early war period. This early period will be ignored as too disturbed by incalculable factors to permit of significant inferences. The two later and more significant periods which will henceforth be designated Period A and Period B, the one extending from 1864 to 1873 and the other from 1874 to 1878, show respectively a large and consistent annual excess of merchandise *imports* averaging about $105,000,000 during Period A, and a large and consistent annual excess of merchandise *exports* (after a two-year transition interval in 1874 and 1875 when merchandise exports and imports approximately balanced), averaging about $163,000,000 during Period B.

(4) During the period of heavy borrowing the net export of gold was large. This was to be expected, inasmuch as the borrowing tended to depress the premium on gold and thus to make it relatively cheap. Note that just the opposite trend would be expected under a gold régime. A reverse movement in the precious metals appears in 1877 and 1878. This movement corresponded with an appreciation in the value of gold which brought it up to and beyond the general level of prices for the first time since 1865.

(5) There was heavy selling of ships in 1862, 1863, 1864, and 1865. By 1863 the effect on the earnings of freighters was to change that item of the international account from a credit to a debit, amounting in the years of large imports to a net of about $25,000,000, and falling to about $15,000,000, when exports began greatly to exceed imports, for then the bulk of the freight charges began to fall on the foreign importers, who paid them to foreign carriers, the item consequently not appearing in the international balance sheet.

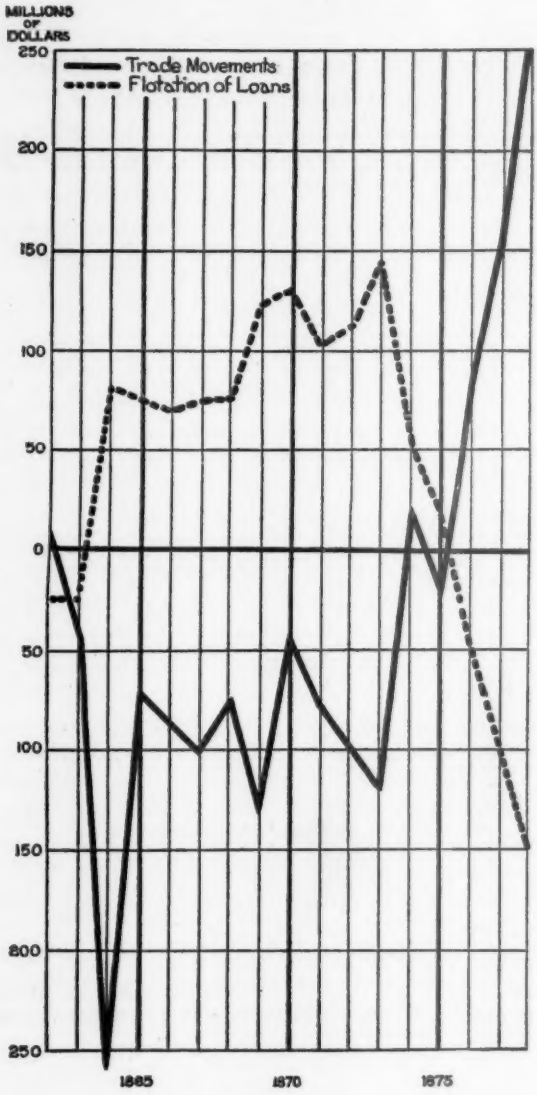
(6) As compared with the period before 1860, there is

an increase in the period 1864–73 in the debits of the United States, both on merchandise account and on freight payments. From 1873 to 1878 the merchandise debit shifts to a credit, the export and import of precious metals tend to converge, while freight payments remain a reduced debit, the net effect being to change a large debit balance on these items in the earlier period into a large credit balance in the later.

(7) The makeweight in these vicissitudes is the factor of loans, the balance on financial account tending to offset the balance on commercial account. Thus large loans were placed by the United States in Europe in 1863, and the merchandise exports of the year ending June 30, 1864 exceeded merchandise imports of that year by the unprecedented sum of $157,000,000, being almost exactly double the value of the exports. And so throughout, till 1873. Large loans and a large excess of merchandise imports go together. Loans were so sharply curtailed after 1873 that they cease to be significant as a credit, and a little later the movement of securities begins to be reversed. By 1876 they are being reimported into the United States, thus inversely corresponding with the coincident change in merchandise account which was now showing a large excess of merchandise exports.

The chart on page 234 brings out clearly the close correlation of merchandise movements and the borrowing operations.[2a] The merchandise movements were of course a function of prices, prices of goods entering into international trade hung on the value of gold, and the value of gold (in terms of greenbacks) was affected by the borrowing operations. The next step, therefore, is to investigate movements in the value of gold.

2a. The black line represents the balance of trade on merchandise account, excess of imports being shown below the zero line and excess of exports above it. The dotted line represents the movement of securities, excess of borrowing being shown above the zero line, excess of repayments below it.


MILLIONS OF DOLLARS
250
200
150
100
50
0
50
100
150
200
250
Trade Movements
Flotation of Loans
1865
1870
1875

III. The Value of Gold in the United States and in Foreign Countries

The first effect to be expected as a result of the large borrowings inaugurated by the United States in 1863 was an increased offering of sterling bills in the New York market, with a consequent fall of sterling exchange in New York. The American securities sold steadily in Europe from 1863 to 1873 tended to depress sterling exchange in New York, and continued to do so until a new adjustment of trade should be reached, the balance being again restored by an increase in imports relatively to exports. Preventing any such restoration of equilibrium were the recurring large new borrowings. One would therefore expect sterling exchange in New York in this period to be pretty constantly depressed. Sterling exchange being depressed in price, its equivalent, gold, would be depressed also. Since gold was a merchandise commodity in the United States during the paper régime, one would expect, from this depression, that its price in the paper currency of the day would be lower than the index number of commodity prices in general, relative, at any rate, to its price under a similar comparison made previous to the borrowing operations.

After borrowing had been severely curtailed following the panic in the fall of 1873, had practically ceased a year or two later, and repayment of loans had begun, the opposite movement in the value of gold is the expectation of theory; the value of gold ought to rise from a point below that of general commodity prices to some point above it.

Further, if any movement which appears in the value of gold is to be attributed to the borrowing operations and to nothing else, a comparison of its movement in the

United States with that of its movement in other countries must be instituted, for the purpose of seeing whether such movement in the United States was peculiar to this country and thus attributable to the special factor of loans.

The remainder of the present section will be devoted to an investigation of the actual movement of the price of gold as compared with the price of commodities in general in the United States, and to a comparison between the movements in the value of gold in the United States, thus shown, with its value in the two foreign countries most important in the international trade of the United States at the time — England and Germany.

The exhibit, Table A on page 237, presents the movements in the price of gold in the greenback currency, in contrast with the index number (median) of commodities in general in the United States.

Comparing the price of gold with the index number of general commodity prices in the United States, as shown in Table A, the following significant facts appear.

(1) From April, 1865[3] till July, 1876, the quarterly average price of gold is *lower* than the index number for commodities in general.

(2) From July, 1876 to the end of the period (with two exceptions, January and April, 1877), the quarterly average price of gold is *higher* than that of commodities in general.

(3) After 1874 there is a *relative* rise in the price of gold.

(4) The most rapid fall in the price of gold (the period before April, 1865 being ignored) appears in the year October, 1869 to October, 1870. Reference to the table

3. Conditions before this date were, of course, dominated by the fact that war prevailed and are, therefore, too disturbed to form a satisfactory basis for any inferences applicable to our purpose. Therefore, 1866 is taken as the originating year throughout this study.

TABLE A AVERAGE PRICE OF GOLD AND THE MEDIAN PRICE OF COMMODITIES IN GENERAL IN THE UNITED STATES 1862–79

Year	Month	Av. price of gold	Median price of commodities	Year	Month	Av. price of gold	Median price of commodities
1862	Jan.	102.5	100	1871	Jan.	110.7	133
"	Apr.	101.5	100	"	Apr.	110.6	131
"	Jul.	115.5	100	"	Jul.	112.4	130
"	Oct.	128.5	111	"	Oct.	113.2	129
1863	Jan.	145.1	125	1872	Jan.	109.1	133
"	Apr.	151.5	137	"	Apr.	111.1	140
"	Jul.	130.6	134	"	Jul.	114.3	130
"	Oct.	147.7	135	"	Oct.	113.2	133
1864	Jan.	155.5	156	1873	Jan.	112.7	135
"	Apr.	172.7	169	"	Apr.	117.8	137
"	Jul.	258.1	194	"	Jul.	115.7	130
"	Oct.	207.2	200	"	Oct.	108.9	131
1865	Jan.	216.2	216	1874	Jan.	111.4	130
"	Apr.	148.5	190	"	Apr.	113.4	129
"	Jul.	142.1	158	"	Jul.	110.0	130
"	Oct.	145.5	175	"	Oct.	110.0	130
1866	Jan.	140.1	182	1875	Jan.	112.5	127
"	Apr.	127.3	173	"	Apr.	114.8	125
"	Jul.	151.6	181	"	Jul.	114.8	121
"	Oct.	148.3	173	"	Oct.	116.4	120
1867	Jan.	134.6	169	1876	Jan.	112.8	117
"	Apr.	135.6	166	"	Apr.	113.0	115
"	Jul.	139.4	150	"	Jul.	111.9	110
"	Oct.	143.5	162	"	Oct.	109.7	108
1868	Jan.	138.5	158	1877	Jan.	106.3	114
"	Apr.	138.7	162	"	Apr.	106.2	108
"	Jul.	142.7	154	"	Jul.	105.4	100
"	Oct.	137.1	159	"	Oct.	102.8	102
1869	Jan.	135.6	159	1878	Jan.	102.1	99
"	Apr.	132.9	159	"	Apr.	100.6	96
"	Jul.	136.1	158	"	Jul.	100.5	90
"	Oct.	130.2	153	"	Oct.	100.5	94
1870	Jan.	121.3	147				
"	Apr.	113.1	140				
"	Jul.	116.8	132				
"	Oct.	112.8	135				

on page 231 will show this to have been the year of greatest acceleration in borrowing. The fall in the price of gold at this time is the more significant in view of the corner in gold established in New York in September, 1869, by means of which gold was raised temporarily almost 30 points in price.

(5) The most rapid rise in the value of gold after 1867, is in the year October, 1874 to October, 1875. Reference to the table on page 231 will show this to have been the year when borrowing was dwindling to the zero point.

These facts correspond pretty closely with the expectation of theory, which would look for a depression in the value of gold as a result of heavy borrowing operations running through the period 1863–73, and an elevation of its value as a result of diminished borrowing and repayment of loans from 1874 to 1878. Detailed consideration will be given to this movement in the value of gold after the results of Table B (page 239) have been examined. Thus far, only the broad sweep of the movement has been noted. Fluctuations within the major movement will appear from a contrast of the value of gold in the United States in individual years with that of its movement in the same years in England and Germany, and on these minor fluctuations the theory will be brought to bear.

Table B shows movements in the value of gold in the United States in contrast with England and Germany. Concentrating attention on columns 4 and 5, 7 and 8, 10 and 11 as most significant, let us note the following.

(1) In 1866 gold depreciates in the United States. This movement is paralleled, but not equaled, in England and Germany; that is to say, there is a relative depreciation in the United States.

(2) In 1867 and 1868 gold shows a strong tendency to appreciate in the United States with no such pronounced tendency in England or Germany.

(3) In 1869 and 1870 gold depreciates in the United States in both years, while in England it remains stationary and then appreciates, and in Germany it first depreciates and then appreciates by the same amount.

TABLE B. MOVEMENTS IN THE VALUE OF GOLD IN THE UNITED STATES, ENGLAND, AND GERMANY 1862–78

	United States					England			Germany		
	1	2	3	4	5	6	7	8	9	10	11
Date	Price of gold in greenbacks	Medians of prices of 92 wholesale commodities (average of quarterly quotations)	Percentage of commodity prices to price of gold	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold	Medians of prices of wholesale commodities	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold	Medians of prices of wholesale commodities	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold
1862	113.3	102.7	90.6	...	...	96	...	...	99	...	...
1863	145.2	132.7	91.4	...	0.9	94	2.1	...	98	1.0	...
1864	203.3	179.7	88.4	3.4	...	96	...	2.0	100	...	2.0
1865	157.3	184.7	117.4	...	24.7	98	...	2.0	100	...	...
1866	140.9	177.2	125.0	...	6.1	100	...	2.0	104	...	3.9
1867	138.2	161.7	117.0	6.8	...	100	...	...	102	2.0	...
1868	139.7	158.2	113.3	3.3	...	99	1.0	...	103	...	1.0
1869	133.0	157.2	118.2	...	4.2	99	...	...	105	...	1.9
1870	114.9	138.5	120.5	...	1.9	95	4.2	...	103	1.9	...
1871	111.7	130.7	117.0	3.0	...	102	...	6.9	105	...	1.9
1872	112.4	134.0	119.2	...	1.8	107	...	4.7	112	...	6.3
1873	113.8	133.2	117.0	1.9	...	107	...	...	113	...	0.9
1874	111.2	129.7	116.6	0.3	...	103	3.9	...	108	4.6	...
1875	114.9	123.2	107.2	8.8	...	97	6.2	...	108	...	...
1876	111.5	112.5	100.9	6.2	...	94	3.2	...	106	1.9	...
1877	104.8	106.0	101.1	...	0.2	98	...	4.1	106	...	...
1878	100.8	94.7	93.9	7.6	...	88	11.4	...	98	8.2	...

NOTE: Prices of commodities in 1860 are taken as the base = 100. Gold at this date would also, of course, be equal to 100. The yearly average price of gold is compared with the yearly average of the prices of 92 wholesale commodities (obtained by averaging the quarterly medians of these prices). The percentage of commodity prices to prices of gold is then shown. Columns 4 and 5 show the yearly per cent appreciation or depreciation of gold as compared with the prices of wholesale commodities. Columns 6–8 and 9–11 give for England and Germany respectively, the medians of relative wholesale prices (prices in 1860 being taken as the base = 100) and the percentage appreciation or depreciation year by year of the value of gold in those countries. Computations are based on data obtained from Mitchell, Gold, Wages, and Prices, pp. 4, 23, 29, and 30.

Summing this up, it appears that there was a relative depreciation in the United States in both years as compared with England and Germany.

(4) In 1871 there is an appreciation in the United States and a depreciation in England and Germany.

(5) In 1872 depreciation is shown in all three countries. This depreciation was more pronounced abroad than at home — a relative appreciation in the United States.

(6) From 1873 to 1878 gold shows a general tendency toward appreciation in all three countries, with the exception of the year 1877. This appreciation is in general more marked in the United States than in England and Germany — a relative appreciation in the United States.

(7) Gold was depressed in value in the United States as compared with Germany from 1866 to 1874 (inclusive) (cf. columns 3 and 9), and elevated from 1875 to 1878. As compared with England (columns 3 and 6) gold was depressed in value in the United States throughout, but shows a relative rise from 1875 onward.

(8) From 1869 to 1873 the movement of the value of gold in the United States and in England is usually in opposite directions, appreciation in the one country being matched by depreciation in the other and *vice versa*. Thus in 1869 and 1870 gold depreciates in the United States, while it remains stationary and then appreciates in England; in 1871 it appreciates in the United States and depreciates in England; in 1872 there is a mutual depreciation, but considerably more prominent in England than in the United States; in 1873 an appreciation in the United States with a stationary status in England.

(9) In this period, 1869–73, the movement of the value of gold in Germany approximates its movement in England, and, as in England, shows an inverse movement to

that in the United States. In one year indeed, 1869, the movement of the value of gold in Germany corresponds to that in the United States, while there was no change at all in its value in England in this year; but in 1873, when gold likewise did not change in value in England, the movement in Germany was in the opposite direction to that in the United States. The movement of gold values in Germany shows as strong a tendency opposite to that prevailing in the United States as does the movement in England at the same time.

Recall now the theory here applicable. The price of gold in the paper basis country will reflect changes in the general situation much more quickly than will the prices of commodities. In studying movements in the value of gold we may, therefore, expect to find effects following quickly upon causes, much more quickly than in the less sensitive merchandise market. Our theory has it that the depreciation in the value of gold which is the immediate effect of heavy borrowing will be followed by a train of consequences (increased commodity imports, decreased commodity exports, and so on) which will have as its own effect an *appreciation* in the value of gold. Borrowing operations of intermittent character would, therefore, be expected to result first in a depreciation of the value of gold and then in an appreciation. As regards continuous, unaccelerated borrowing, equilibrium of payments and equilibrium in the exchanges having been established on the basis of a certain constant annual value of loans placed, gold after its initial depreciation will tend (as a result of the operation of the long-range forces) again to appreciate, provided that the only new borrowing is that which is normal to the new equilibrium. In order that gold should depreciate further after it has reached its level under the new equilibrium, the scale of borrowing must be *increased*.

The actual movement of the premium on gold supports the theoretical expectation. The war years are of little significance, the premium on gold being largely dependent upon the degree of confidence which was felt in the success of the North. Things did not settle down till 1867. Refer now to Table B and note how the depreciation and appreciation of gold values corresponds with the flotation of loans by the United States in the London market as shown in the balance sheet on page 231. Gold appreciated in value in 1867 and 1868 when the long-range effects of the loans inaugurated in and continued since 1863 would be expected to be dominant, the borrowing in 1867 and 1868 being no more than was normal to the new equilibrium. A great increase in the scale of borrowing operations in 1869 and 1870 is reflected, as the theory would expect, in a depreciation in the value of gold in the United States. Borrowing fell off very considerably in 1871 and correspondingly gold appreciated in value in the United States. In 1872 and 1873 loans floated by the United States in Europe increased somewhat in each year, tho not greatly. In 1872 gold depreciated in the United States absolutely but not relatively and in 1873 it appreciated both relatively and absolutely. This last is contrary to the theoretical expectation, tho it is to be said that the increase in borrowing was not great, and the relative appreciation slight, so that the operation of the long-range tendencies making for appreciation may perhaps be presumed to have more than compensated the slight depreciation which would be anticipated from the slightly increased borrowing.

In the period 1867–73 then, our theory on the whole receives confirmation, for not only does the movement in the value of gold in the United States conform in the main to expectation, but in the same period an inverse

movement tends to manifest itself in corresponding years in England and Germany.

Consider now the period 1874–78. In 1874 the theoretical expectation of a relative appreciation in the United States following a decline in borrowing is disappointed. There *is* an absolute appreciation, but this absolute appreciation is more than matched in England and Germany. The years 1875 and 1876 show both an absolute appreciation in the United States and an appreciation relative to England and Germany, thus conforming to theoretical anticipation; for these years marked respectively the cessation of borrowing and the beginning of repayment. The same relative situation continues in 1877 as between the United States and England (tho not Germany). This corresponds with repayments of loans on an increasing scale. A high appreciation in all three countries is shown in 1878, tho the movement is not as great in the United States as in the European countries, evidence that the long-range forces, as expected at this date, have once again become predominant.

Summing up, it may fairly be said that throughout the period 1867–78 there is a close correspondence between the fluctuations in the value of gold and the amount of borrowing and of repaying by the United States in the European loan market. The loans were apparently a dominating factor in the exchanges, and through the exchanges in determining the value of gold. A major cycle involving depression in the relative value of gold from 1866 to 1873 in the United States as compared with England and Germany, followed by a rising relative value from 1875 to 1878 corresponds with a period of heavy borrowing from 1866 to 1873 and a succeeding period of dwindling loans and the beginning of repayments from 1874 to 1878. This major cycle is marked by

minor fluctuations pretty closely adhering to theoretical expectation, the minor movements in the value of gold in the United States not only corresponding in this way to the demands of theory, but also showing a definite inverse trend to the synchronous movements in England and Germany — strong evidence that the borrowing and lending operations were the cause of the fluctuations.

It should be borne in mind that it is the value of gold in terms of commodities, and not in terms of greenbacks which is shown in column 3 of Table B. Fluctuations in the gold value of the greenback [4] are therefore irrelevant, except for short periods, during which adjustment of greenback commodity prices to the gold value of the money unit is proceeding. These periods of adjustment may indeed be quite adequate to account for such discrepancies as appear between the facts and theoretical expectation, but the discrepancies will then be due not to the change in the gold value of the currency, but to the fact that such a change, tho followed by a corresponding change in commodity prices, nevertheless takes time to work out its effects. Disregarding this tardiness of adjustment in the United States, which so far as it was effective tended to defeat theoretical expectation, columns 3, 6, and 9 present a fair comparison of the value of gold in terms of commodities in the United States, England, and Germany respectively. Gold fluctuated in value in all three countries but it is the relative not the absolute movement which is significant.

4. The total money in circulation in the United States (of which the major part was inconvertible paper) fluctuated but slightly in the period 1865–78. In 1865 total money in the United States (including gold and silver coin, bullion in the Treasury, United States notes and national and other bank notes) was $770,398,000. From that time till 1869 there was a slow decline to $716,471,000, then an upward movement terminating in 1874 at $806,024,000. A new decline then sets in which goes to $763,053,000 in 1877 when the tide turns once again toward recovery (Reports of the Comptroller of the Currency).

Finally it will be noted that when in 1867, after the vicissitudes of the war years had passed, and gold had, so to speak, found its level in the United States, albeit for some years a depressed level, the fluctuations in its value (in terms of commodities) in this country were on the whole no greater than in England, and that its value was more stable in Germany than in either the United States or England. This latter fact constitutes further evidence of the effect on the value of gold of the lending operations, for in these operations Germany played a small part, and the value of gold in Germany was therefore affected but indirectly in the course of Germany's trade with the United States and England; whereas its value in England and the United States was affected by the loans directly and with much greater force.

So much with regard to the test of the first stage in the causal sequence laid down in the theory — the movement in the value of gold consequent upon a disturbance in the equilibrium of the international account through the introduction and withdrawal of large loans. Let us now turn to the effect of these loans, operating presumably through fluctuations in the value of gold, upon the course of international merchandise transactions.

IV. Fluctuations in the Movement of Merchandise

Previous to the Civil War the normal equilibrium had been one in which merchandise exports (including gold and silver coin and bullion) exceeded imports by an average of $20,000,000 yearly. This was the case in the six years previous to June 30, 1860. In the six years following, the average was $24,000,000 yearly the other way. In 1867 the excess of imports mounted to $60,000,000. It would seem that this last effect must

be attributed to the loans which were then being placed by the United States in the European market. The $20,000,000 normal excess of exports prior to 1860 would go to pay other items in the international account on which the United States was in those years a debtor. In addition to the falling behind in commodity exports in the six years 1861–66 the earnings of the merchant marine of the United States fell off very greatly. The sale of ships in the war years temporarily sufficed to offset this decline in freight earnings, but the normal excess of $20,000,000 in exports was wiped out by borrowings.

The $60,000,000 excess of imports in 1867, following the depreciation in the value of gold (that is, high gold prices) in the United States in 1866, was succeeded by an excess of *exports* in 1868 of $4,000,000. Reference to page 239 will show an *appreciation* in the value of gold in the United States in 1867 and 1868. It appears that in 1868 the long-range effects of the borrowing of the preceding years were becoming dominant over the immediate effect of new loans: that is to say, the increased supply of goods due to large imports, the money supply meanwhile remaining stationary, was lowering all prices in the United States and thus tending to increase exports; while the diminished supply of goods (due to large exports) and an increased monetary supply (due to imports of gold) were raising prices in Great Britain and tending to decrease exports from that country to this.

In 1869, when borrowing by the United States began on a new and greatly increased scale, the immediate effects of this new borrowing became dominant over the long-range effects of the former loans. Imports in the year ending June 30, 1869 exceeded exports by $94,000,000. The fall which, as we have seen, took place in

the value of gold in consequence of these loans would lower the yield on such commodities as were dependent upon the value of gold, that is the exports, and so would tend to restrict them; while the rise in the value of gold in Great Britain would lower the prices of imports from that country and so tend to encourage them. Gold continued to rise in value in Great Britain in 1870 and to fall in the United States, and merchandise imports into the United States for the year ending June 30, 1871 greatly exceeded merchandise exports, tho the export of gold from the United States was large enough almost to effect a balance. This export amounted to nearly $100,000,000 and is easily explained by the relatively high value of gold in Great Britain, or, to put it in another way, its cheapness in the United States.

In the year ending June 30, 1872 merchandise imports into the United States exceeded merchandise exports by about $182,000,000, loans continuing meanwhile to be placed in large volume; and again in 1873 merchandise imports showed an excess over exports of $120,000,000. As has been pointed out, the appreciation in the value of gold in the United States which occurred in 1871 and 1872 was contrary to the expectation of theory. It is interesting to note that the merchandise movement did not follow the vagary in gold. After 1873 the check on borrowing was so stringent as to constitute a relative, and about 1875, an absolute cessation; in the latter year repayments began to outrun new loans. Reference to Table B will show an appreciation in gold in the United States in the years 1873–77. A corresponding cessation of the excess of merchandise imports over exports takes place at the same time. Thus for the year ending June 30, 1874, merchandise exports exceed imports by $19,000,000 and tho in 1875 a slight reversion causes an excess of imports of the same

amount, in the years ending June 30, 1876, 1877, 1878, excesses of merchandise exports of $80,000,000, $151,000,000, and $258,000,000 appear, completely reversing conditions in the early seventies. Accompanying this reversal in merchandise account there was a corresponding reversal in financial account, the large loans of the early period changing to large repayments in the later. All this is in accord with our theory. But whether the loans were the cause of the movement of merchandise or the movement of merchandise was the cause of the loans, which in the latter view would be considered to have been floated for the purpose of extinguishing a merchandise debit already created, is yet to be determined.

So far two results have appeared: (1) that the heavy borrowing of the late sixties and early seventies tended to depress the premium on gold in the United States, and the cessation of these loans and their repayment to elevate that premium; and (2) that there was a correspondence between the flotation of loans and the course of international merchandise transactions. It remains to show the relation of cause and effect between (1) and (2); to show how the depression in the premium on gold as a result of the loans acted upon prices in such a way as to stimulate imports into the United States and check exports from the United States, and thus to effect a balance; to show the converse tendency produced by the cessation of borrowing and the repayment of the loans; and how the change in the course of trade, thus brought about, itself affected prices in such a way as to establish a new equilibrium. This involves an investigation of price phenomena, which will be undertaken in the section to follow.

V. Prices

A. Price Changes in the United States

The precise object of the inquiry on the course of prices will be to see if any significant differences can be traced between the price movements of commodities exported by the United States, commodities imported into the United States, and commodities both produced and consumed in the United States; differences between these three groups being considered with regard to the course of international trade and an adjustment of equilibrium.[5]

Of the 153 available series of wholesale price quotations by quarters from 1860 to 1880 many are for slightly different forms of the same commodity or for closely related commodities; thus there are three series for flaxseed, five for starch, etc. Professor Mitchell has grouped into a single series the prices of all such closely related commodities and has reduced the 153 series to 92. These 92 series have been here divided into the three classes just mentioned: (*a*) export commodities, which comprise all those commodities exported by the United States on a scale sufficient to cause their price to be determined in a foreign market; (*b*) import commodities, which comprise all those commodities the import of which was great enough to be the determining factor in their prices; (*c*) domestic commodities, which comprise all those commodities the production and consumption of which was carried on almost exclusively at home. Some of the commodities for which price quotations are available, could not well be placed in any one of the three categories. Such were lumber and hides, both

5. Figures for prices in the United States still have been obtained from Professor Mitchell's study. They have been rearranged for the purpose of the present investigation.

imported and exported, and for the present purpose neither fish, flesh, nor fowl. They have therefore been omitted. Of the 92 series, 74 were reasonably amenable to our classification. Export commodities constitute 18 series; import commodities, 14 series; domestic commodities, 42 series.

Prices in 1860 are taken as the standard (100) because an average for the decade or quinquenniad preceding 1862 was not possible, since the data available in many cases do not run previous to 1860; and it was not desirable to take the year 1861, since it was one of marked business depression. 1860 was a normal year, and therefore the prices of that year are taken as giving the best available standard.[6] All prices are relative to the price for the given commodity in 1860.

Before giving in tabular form the results which come from the regrouping of the price statistics available, let us direct attention once more to the trends that theory would lead us to expect in prices in the United States. They are as follows.

1. Transitional effects.

In Period A, 1866–74 (the period of heavy loans to the United States by Europe).

(1) Low (paper) prices of export commodities.

(2) Gradually falling (paper) prices of import commodities.

(3) Relatively high (paper) prices of domestic commodities.

In Period B, 1874–78 (the period of the cessation of loans floated in Europe by the United States and their partial repayment).

(1) High (paper) prices of export commodities.

6. With regard to commodities subject to seasonal fluctuations in prices the *average* of quarterly quotations for 1860 serves as a base. For the rest the price on January, 1860, is usually taken, tho for various reasons some other month of 1860 might have been selected as more representative.

(2) Gradually rising (paper) prices of import commodities.

(3) Relatively low (paper) prices of domestic commodities.

2. Long-range effects.

Period A. Relatively low prices in the United States, as compared with other countries, for all commodities.

Period B. Relatively high prices in the United States, as compared with other countries, for all commodities.

The transitional price movements of Period A — low paper prices of export commodities, gradually falling paper prices of import commodities and, as compared with export and import, high paper prices of domestic commodities — will in Period B tend to be reversed toward high paper prices of export commodities, gradually rising paper prices for import commodities and, as compared with export and import, low paper prices for domestic commodities.

Owing to the vicissitudes in the commercial and financial situation at this time, the long-range effects can scarcely ever be expected to be dominant. They will be operative, and will tend, as have been shown, to neutralize the transitional effects. But the changes in fundamental conditions which occur here at intervals of a few years only will make the transitional effects conspicuous, the long-range effects not having time to dominate the situation before a new disturbing influence appears.

One word further, in explanation of the theoretical expectation with regard to the prices of export and import commodities. The premium on gold having fallen, the (paper) prices received for export commodities immediately fall, since the price of these commodities is set

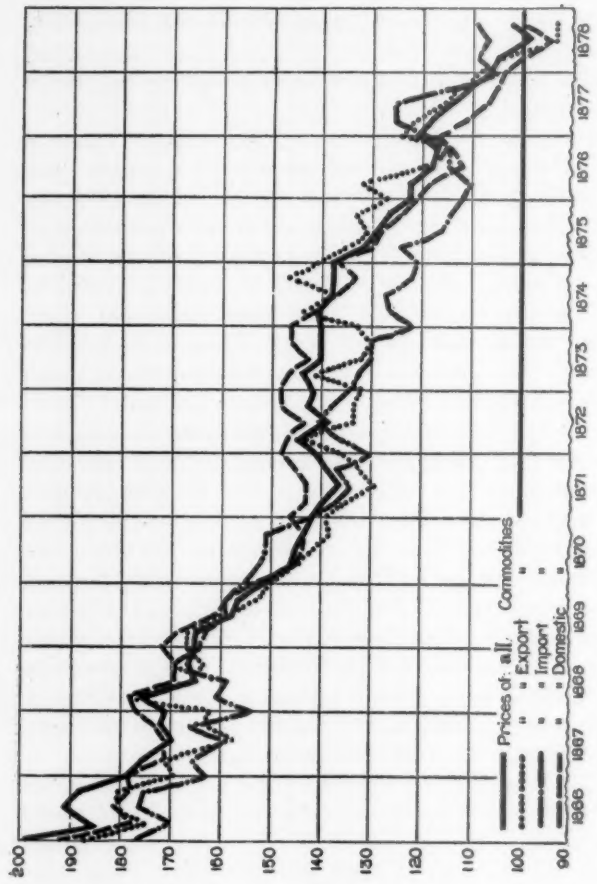
in gold in a foreign market. This fall in the paper price received for exports will tend, it is true, to diminish supply and so cause an upward movement in their prices thereafter. But the competition from other countries supplying the same market will tend to keep the gold price at its former level and thus the paper price low. So far, however, as foreign competition is not operative, there will be a gradual rise in the gold prices of these commodities to a point where the paper price into which the gold price is translated bears the same relation to the paper prices of other commodities as before the decline in the gold premium. As for imports, they are obtained for the same gold price as before the fall in the gold premium and therefore cost less in paper. Since there is no change in the conditions of demand, they can be sold at the same paper price as formerly and importers will for a time get abnormal gains. Competition will however tend to bring their paper prices down. Thus a depreciation in gold will cause the paper prices of exports to fall immediately, after which they may very gradually tend to rise; while imports on the other hand, unaffected immediately, begin quickly to fall in their paper prices and will fall till their paper prices bear the same relation to the paper prices of other commodities as before the fall in the gold premium. A decline in the gold premium, then, will cause the paper prices of exports to fall below the paper prices of commodities in general, the paper prices of import commodities will follow this decline with a lag, the prices of export commodities meanwhile tending slightly to recover. Conditions are of course just reversed when the premium on gold rises.

The table and chart which follow present by quarters, for 1866–78, the arithmetic mean of wholesale prices in general (92 commodities); the arithmetic mean of

ARITHMETIC MEANS OF PRICES OF EXPORT, IMPORT, DOMESTIC AND GENERAL COMMODITIES

Date		Arithmetic mean of all commodities (92 articles)	Arithmetic mean of 18 export commodities	Arithmetic mean of 14 import commodities	Arithmetic mean of 42 domestic commodities
1866	January	199 [7]	188	177	192
"	April	186 [7]	175	170	177
"	July	191 [7]	181	176	181
"	October	188 [7]	180	175	178
1867	January	179 [7]	169	163	173
"	April	175 [7]	171	165	171
"	July	170	157	159	171
"	October	172	163	166	173
1868	January	171	162	154	177
"	April	176	178	161	178
"	July	165	165	159	169
"	October	166	163	169	169
1869	January	165	167	164	172
"	April	165	167	163	168
"	July	158 [7]	160	159	161
"	October	157	153	159	159
1870	January	152	150	155	153
"	April	146	146	153	145
"	July	145	142	151	143
"	October	143	138	151	143
1871	January	142	139	142	146
"	April	140	136	137	143
"	July	137	129	134	143
"	October	139	132	137	145
1872	January	141	136	130	148
"	April	145	145	136	147
"	July	139	133	140	143
"	October	143	133	133	148
1873	January	142	132	134	148
"	April	144	141	132	147
"	July	140	132	130	143
"	October	140	130	130	146
1874	January	140	133	122	146
"	April	141	144	126	141
"	July	138	138	127	137
"	October	138	146	122	133
1875	January	138	141	121	137
"	April	132	135	124	130
"	July	129	131	116	128
"	October	127	133	114	124
1876	January	122	127	112	121
"	April	122	132	110	118
"	July	118	119	115	112
"	October	117 [7]	115	114	114
1877	January	121	124	118	117
"	April	118	121	125	111
"	July	114	115	125	107
"	October	110	112	113	105
1878	January	107	108	105	103
"	April	105	104	109	99
"	July	99	93	107	94
"	October	102	93	109	100

7. In these quarters, chiefly in the years 1866 and 1867, the figures of average general prices for the ninety-two commodities will be found to be higher than the average prices of any of the groups of export, import or domestic commodities; and in one case, July, 1869, they are lower. This is because the three segregated groups together comprise only seventy-four of the ninety-two commodities. The influence of the eighteen omitted commodities accounts for the apparent error. These eighteen commodities, while incapable of being considered domestic commodities pure and simple, are nevertheless of much greater significance in domestic than in foreign trade. If included as domestic commodities they would, in seven of the total of eight cases where the discrepancy occurs, have occasioned changes which would have emphasised the results expected by theory. In one case their inclusion would have had the opposite effect.


200
190
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1866
1867
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1872
1873
1874
1875
1876
1877
1878
Prices of all Commodities
" " Export " "
" " Import " "
" " Domestic " "

wholesale prices of 18 export commodities; the arithmetic mean of wholesale prices of 14 import commodities; and the arithmetic mean of wholesale prices of 42 domestic commodities.

The significant movements shown in these figures are the following:

(1) From the first quarter of 1866 to the first quarter of 1874 (inclusive) the average price of domestic commodities is only twice (October, 1866 and April, 1870, and here the maximum difference is two points) lower than that of export commodities, and from the latter date to the second quarter of 1878 they are never once higher. In three instances, July, 1866, April, 1867, and April, 1868, the average of both types of commodities is the same. The greatest difference between the average prices of the two types is 21 points in October, 1872.

(2) From the first quarter of 1866 to the second quarter of 1876 (inclusive) the average price of domestic commodities is never once lower than the average price of import commodities except for all four quarters of the year 1870; and from the second quarter of 1876 to the concluding quarter of the period studied, 1878, they are never once higher. Note here how the prices of import commodities follow those of export commodities with a lag. The response of import to export movements is not immediate, but a general sympathy is evident. Export commodity prices respond quickly to the changed conditions after 1873, import commodities slowly.

(3) From the first quarter of 1866 till the first quarter of 1874 the average price of *export* commodities is never higher than the average of general prices (all commodities) except in April, 1868, and for the first three quarters of 1869 (the maximum difference in any one of these exceptional cases is two points); and from the second quarter of 1874 till the first quarter of 1878 it

is never lower except in October, 1876, when it falls below the average of general prices by two points.

(4) From the first quarter of 1866 to the second quarter of 1877 the average prices of *import* commodities are never higher than the average of general prices (all commodities) except in October, 1868, July and October, 1869 and all four quarters of 1870; and from the second quarter of 1877 to the end of 1878 they are never lower, except in January of the latter year. Here again the lag in the price movement of imports is evident. The revolution in trade after the panic of 1873 does not work out its full effect on import prices till 1876 or 1877.

(5) From the third quarter of 1867 to the second quarter of 1874 (inclusive) the average price of domestic commodities is never lower than the average of general prices (all commodities) except in April and July, 1870, and is usually four to six points higher. From July, 1874 onward it is never once higher and is usually four to six points lower.

(6) On the curtailment and practical cessation of borrowing by the United States, beginning with 1874, export prices responded almost immediately, shifting permanently in 1874 from a status consistently below the averages of domestic and of general prices to one consistently above it. Import prices responded also, but more slowly, and tho showing an absolute rise in April and July, 1874, while domestic and general prices were falling, and with some checks a relative rise thereafter, it was not until July, 1876 that they became absolutely higher than the prices of domestic commodities, and not until April, 1877 that they became absolutely higher than the average price of all commodities.

(7) While the average prices of export commodities are generally higher absolutely in the first years of large borrowing (the years immediately after the war) than

the average prices of import commodities, yet there is a sharper fall in the prices of exports in these years than in those of imports. In October, 1866, the prices of export and import commodities respectively were 179 and 175, by October, 1867, 163 and 165, and by October, 1868, 163 and 169.

(8) After the panic of 1873 and the cessation of borrowing export prices rise rapidly and then gradually fall, while import prices remain fairly constant with a tendency in 1876 and 1877 to increase.

B. Interpretation of American Prices

All of these results are in correspondence with the theoretical expectation. Loans, as has been pointed out, were severely curtailed by the panic of September, 1873. The complete shift in the relations of export and import prices to those of domestic commodities took place almost immediately, by April, 1874. Previous to that date, during the period of heavy loans floated by the United States in Great Britain, export and import commodity prices, were, consistently with theory, almost without exception lower than domestic commodity prices; after that date and the relative cessation of borrowing, they were, again consistently with theory, almost without exception relatively, and for the most part absolutely, higher. Import prices, both during the period of large borrowing and after its cessation, as theory would expect, responded more slowly than export prices to the changes caused by the introduction of the loans into the international account and by their abstraction from it.

The most striking exception is the year 1870, when import price figures rise above the prices of domestic commodities in all four quarters. It is possible that the

Franco-Prussian War, by setting up a large demand for English exports (i. e., American imports) may account in some measure for this phenomenon.

It will be noted that the April quotations of exports tend to be the highest of the four quarters—a natural result of the fact that the exports were predominantly agricultural products and the April quarter would show an advance in prices over that of any other of the three. On this ground it would be more just to take the yearly average than quarterly prices. If this were done, several of the cases in which fact and theory do not correspond, few as these are, would be removed and a still more ideal correlation would appear.

C. Comparison between Price Movements in the United States and in England

The course of prices in England, so far as they were affected by the movements in exchange on the United States, ought to show a tendency contrary to that which appears in the United States. It is not to be expected that English prices would respond readily to the fluctuations in New York exchange, since Great Britain was on a gold basis and the movements of American exchange would affect only a portion of her total foreign trade. Nevertheless Great Britain's trade with the United States was a considerable fraction of her total foreign commerce. Since exports to, and imports from, the United States would be affected by movements in the rate of exchange, it is to be expected that a price movement would develop in England opposite to that appearing at the same time in the United States, exports and imports contrasting with domestic commodities but in the converse direction.

No such complete quotations of English as of Ameri-

can prices are available. But a series of prices,[8] derived from the Aldrich Report gives quotations for commodities, twelve of which may be classed as domestic, twenty-six as import, and five export. The last group is obviously too narrow for any significant inferences and there have been added to it the prices of fourteen other export commodities derived from a supplement to Soetbeer's Hamburg prices in the Aldrich Report, purporting to be the London prices of the English exports mentioned. Prices are given by years only.

Taking 1873 as the year of the shift, and drawing at that year the line of separation of Period A from Period B, the theory would expect the following:

In Period A (United States borrowing).

Transitional effects.

(1) High Prices of Exports. Exporters to the United States will be able to obtain for a time practically the same paper prices as before the disturbance of equilibrium and these translated into gold, which has depreciated, will yield more than formerly. As competition develops among the exporters these prices will tend to drop.

(2) Rising Prices of Imports. The gold obtained by American sellers for their products when translated into paper yields less than before the depreciation of gold, and unless the British buyers can import from some other country the sellers will gradually be able to raise their prices.

Ultimate effect.

A General Rise in Prices. There will be less goods and an increased amount of money as a result of the shift in the play of international demand consequent upon the change in price levels. This general rise in prices will appear as a relative

8. Part I, pp. 248 et seq.

rise in the prices of domestic commodities, exports and imports already having risen in price.

In Period B (United States ceases borrowing).

Transitional effects.

(1) Low Prices of Exports. The paper prices obtained for exports to the United States (the market which sets the price) will, owing to the appreciation of gold, yield less than formerly. These prices will gradually tend to rise as the supply is curtailed owing to the low prices obtainable.

(2) Falling Prices of Imports. Due to competition among sellers in the United States, who as an immediate effect of the appreciation of gold, have on its translation into paper, obtained high prices for their products.

Ultimate effect.

A General Fall in Prices. There will be more goods and less money as a result of the shift in the play of international demand consequent upon the change in price levels. This general fall in prices will appear as a relative fall in the prices of domestic commodities, exports and imports already having fallen.

The arithmetic means of the nineteen export, twenty-six import and twelve domestic commodities, for which English quotations are available, are given on page 261.

The following results may be noted:

In Period A (1866–73).

(1) Export prices exceed in every year both import and domestic commodity prices.

(2) In 1866–70 import prices are higher than domestic commodity prices. In 1871–73, however, they are lower.

(3) From 1866 to 1871 the prices of export commodities fall relatively to both import and domestic commodities.

PRICES IN ENGLAND

Date	Arithmetic average of 19 export commodities	Arithmetic average of 26 import commodities	Arithmetic average of 12 domestic commodities	Sauerbeck's [9] index no. all commodities
1866	124	110	102	106.5
1867	118	106	104	103.9
1868	113	106	103	103.1
1869	114	105	100	101.9
1870	111	103	98	100.3
1871	111	103	104	102.6
1872	126	106	111	112.5
1873	130	103	119	116.6
1874	122	98	110	107.0
1875	116	91	109	100.3
1876	110	90	109	97.5
1877	105	94	107	97.4
1878	100	86	105	91.2

(4) In 1870–73 general prices rise.

In Period B (1874–78).

(1) Export prices fall *relatively* to domestic prices throughout, but are not lower absolutely till 1877.

(2) Import prices are lower than domestic prices throughout the period and show, moreover, a relative fall as compared with the prices of domestic commodities.

(3) General prices fall.

These results are in close consonance with the expectation of the theory. The interpretation of them is:

Period A. (1) The high prices of export commodities are in accordance with the theory as to the immediate effects of borrowing operations, to which export commodities most quickly respond.

(2) Import prices are higher than domestic prices till 1871 when the long-range effects tending to raise all

9. Aldrich Report, Part I, p. 255.

prices, cause a relative fall in imports as compared with domestic commodities.

(3) The tendency of export prices throughout the transitional period to drop from the high level which is the immediate effect of the borrowing operations is here clearly shown. Short-range effects again become dominant after 1871 as a result of the great new lending operations inaugurated in 1869 and 1870, and prices of export commodities show once more both an absolute and relative appreciation.

(4) The general rise 1870–73 illustrates further the long-range tendency.

Period B. Results (1), (2), (3) are all in consonance with the expectation of theory. The revolution in international finance which began in 1874 is accompanied here as elsewhere by a revolution in prices strictly corroborative of theory.

The course of the price phenomena in England and in the United States ought to be in opposite directions. The following tabular comparison of the arithmetic average prices in the two countries shows how well the theory is verified.

Period A (1866 to end of 1873)

United States (*paper standard*)	*Great Britain* (*gold standard*)
(1) Export commodity prices never above domestic commodity prices except in two quarters, October, 1866, and April, 1870.	(1) Export commodity prices never below domestic commodity prices.
(2) Import commodity prices never above domestic commodity prices except in 1870.[1]	(2) Import commodity prices *are* above domestic commodity prices until 1870 — but not thereafter.[1]
(3) General prices falling.	(3) General prices rising.

1. Possibly explained as the effect of the Franco-Prussian War.

Period B (1874–81)

United States (*paper standard*)	*Great Britain* (*gold standard*)
(1) Export commodity prices rise relatively to domestic commodity prices, and from April, 1874 to April, 1878 the former are never below the latter.	(1) Export commodity prices fall relatively to domestic commodity prices, and after 1877 the former are absolutely lower than the latter.
(2) Import commodity prices rise after 1874 relatively to domestic commodity prices and after October, 1876 are never lower than these latter.	(2) Import commodity prices fall after 1874 relatively to domestic commodity prices and after that date are never higher than these latter.
(3) General prices fall. (This is contrary to theory but is probably due to the rapid appreciation of the paper money owing to the prospect of early redemption in gold.)	(3) General prices fall.

The contrast in the price movements in the United States and England, the movement in both countries being in confirmation of the theory, furnishes corroborative evidence too strong to be accepted as mere coincidence. The price movement in one country at one time might be in correspondence with theory, tho due to quite extraneous causes; but it is not within the bounds of any probability that in different countries there should be an opposite tendency in prices at the same time, that the conditions should be reversed in both countries at the same time, that all the expectations of theory should be confirmed under these conditions, and the theory yet be wide of the mark.

The opposite tendencies of prices in the United States and England in the period studied would hardly have been possible if both countries had been under a gold régime. For gold would then have moved freely, and freely entered the circulation of both countries, and the

prices of transportable commodities could not have varied greatly in the two countries as compared with their prices before the gold movement took place.

Moreover, with both countries under a gold régime, when equilibrium had been disturbed and gold had flowed to country A from country B, exports of A would tend to rise in price, owing to the increased stock of gold in A, while imports from B would tend to fall in price, owing to the decreased stock of gold in B; that is, the movement of export and import prices in A (and in B, too) would be divergent. But in the present case the movement of export and import prices has been in the same direction (tho in different degrees), since both exports and imports are paid for in gold and rise or fall in their paper prices with the appreciation or depreciation of gold. The contrast is then, not between exports and imports — their prices move together — but between export and import commodities on the one side and domestic commodities on the other.

With both countries under a gold régime, when exchanges had been disturbed sufficiently to induce a flow of gold from one country to the other, the price level would be changed, no doubt unevenly, but in no such way as to make a classification along lines of export, import, and domestic commodities likely to produce any significant results. The adjustment to equilibrium would be reached by a movement in general prices which would tend to carry *every* price in either country in the same direction.

With one country upon a paper basis the readjustment is effected through the exchanges solely, at least so far as the paper-using country is concerned, since for it, the movement of gold cannot affect prices. And it is effected by a movement of prices which discriminates between classes of commodities. The prices of commodi-

ties which enter into international trade are affected first and foremost, and the course of the trade itself is controlled thereby. This direct effect upon the prices of commodities which enter into international trade, with no direct effect upon other commodities, is a more efficient regulator of international trade toward an equilibrium than the irregular and widely distributed movement of prices to be expected with both countries under a gold régime could possibly be, and so a quicker adjustment is likely to be reached in the international trade of a country which is on a paper than in that of one on a gold basis, assuming, of course, that no new disturbing factor enters the situation.

VI. Wages

One further aspect of the subject remains to be treated. This is the effect of the shifts in prices upon the production of commodities. It is an essential part of the theory that, under the conditions assumed, the movements in prices in the paper-using country tend to divert production from an industry producing a commodity for export to one producing a commodity consumed at home, or *vice versa;* that export industries will become relatively unprosperous when the course of international trade and the movement of the exchanges causes a depreciation in gold, and relatively prosperous when gold appreciates.

Thus in Period A (1866–74) the theory would expect exporting industries to be unprosperous as compared with industries producing commodities for home consumption. A movement of capital and labor out of export industries will set in, while industries producing commodities for domestic consumption will receive accessions of labor and capital. This movement will

continue until the expectation of profit is as great in the one type of industry as in the other. So the theory would lead us to expect relatively unprosperous exporting industries in Period A; and in Period B when borrowing had ceased, and gold was, as a consequence, appreciating relatively to the prices of commodities in general, a prosperous status for export industries as compared with industries producing commodities for domestic consumption.

Probably the best test of the relative prosperity of industries lies in the movement of wages. Tho wages move less freely than prices—wages show some measure of retardation — yet where an industry is prosperous the pressure for an increase of wages is almost certain to be effective in raising them. On the other hand, where an industry is unprosperous, the resistance to such pressure will be indefinitely greater and wages either will fall or, if they rise, will rise to a less degree than in the prosperous industries.

It is true that the prosperity or depression of an industry will find its reflection in profits as well as in wages, or perhaps, indeed, earlier in profits than in wages. Nevertheless relative wages are the better material for a test of the comparative prosperity of industries for two reasons. (1) Wages for any given sort of labor are uniform throughout the industry, whereas the profits of the various firms which compose the industry will vary from nothing to all to an indefinitely great amount. Hence "normal" profit for the industry at the given time is practically impossible to determine. (2) There are no statistics of profits at this period which are of any value.

Taking relative wages then, as the best test of the comparative prosperity of industries, statistics of wages have been computed from the series of wage schedules

given in Mitchell's *Gold, Wages, and Prices.* Professor Mitchell drew on two sources for these data: (1) the compilation of the Bureau of Labor for the Senate Committee which prepared the Aldrich Report in 1892, and (2) the compilation made between 1880 and 1882 by Mr. Joseph D. Weeks for the Tenth Census. These sources, treated separately by Professor Mitchell, may be made to supplement one another for the present purpose. The Aldrich Report gives wage data in twenty-one industries, but of these, twelve industries are so meagerly represented that Professor Mitchell regards the data as too scanty to promise significant results. From the Aldrich Report statistics the present study takes into consideration only eight industries, omitting, in addition to Professor Mitchell's twelve, that of cotton ginghams, which seemed to offer nothing very different from cotton textiles at large. The Weeks Report covers thirty industries in all, in nine of which there are sufficient data to give significant figures of relative wages. Two of these, cotton textiles and woolen textiles, correspond to industries also covered by the statistics given in the Aldrich Report, the other eight being represented in that report either inadequately or not at all. Of the two wage series which occur in both reports those of the Weeks Report have been preferred since they are based on much more comprehensive data. There are then six industries represented from the Aldrich Report and nine from the Weeks Report, fifteen in all, as follows: Building Trades, Carriages, City Public Works, Cotton Textiles, Furniture, Glass, Illuminating Gas, Metals, Paper, Pottery, Railroads, Sawmills, Stone, Tanneries, and Woolen Textiles.

These industries are divided into two classes:

Class A — Industries producing for the domestic market, including the Building Trades, Carriages, City Public Works, Illuminating Gas, Railroads, Saw-mills, and Stone.

Class B — Industries producing for export, or industries subject to competition from abroad, and therefore having the prices of their products in large degree determined by the value of gold in terms of paper. This group includes Cotton Textiles, Furniture, Glass, Metals, Paper, Pottery, Tanneries, and Woolen Textiles. To this group has been added Farm Labor, for which the wages rates, tho not so full as those of the manufacturing industries here given, are yet of such significance for the present inquiry that they ought to be included.

In forming the tables of the mean wage in each industry, the wages for the several occupations in each industry are averaged, the wage in 1860 in all cases being taken as the base = 100.

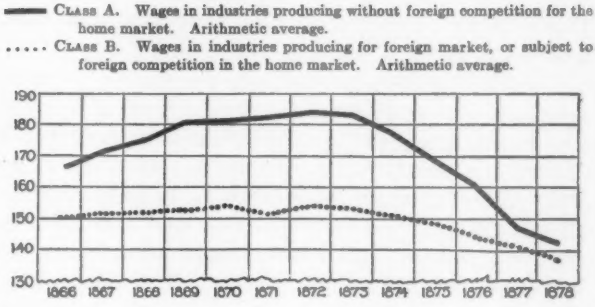
Arithmetic means of wages grouped into the two classes indicated above are:

RELATIVE WAGES [2]

Year	Class A industries (producing commodities consumed at home and not subject to foreign competition)	Class B industries (producing commodities for export or subject to foreign competition)	Year	Class A industries	Class B industries
1866	165	150	1873	182	153
1867	171	151	1874	177	151
1868	174	151	1875	168	148
1869	180	152	1876	160	144
1870	181	154	1877	147	141
1871	182	152	1878	142	137
1872	183	154			

2. In paper money.

The appended chart shows clearly the difference of movement in the two classes.


CLASS A. Wages in industries producing without foreign competition for the home market. Arithmetic average.
CLASS B. Wages in industries producing for foreign market, or subject to foreign competition in the home market. Arithmetic average.
190
180
170
160
150
140
130
1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878

We may note: (1) in the period 1866–73 wages are consistently higher in Class A industries than in Class B, and they rise from an average of 165 in 1866 to 183 in 1872, or a maximum spread of 18 points. Wages also rise in Class B industries, but very slightly, the maximum spread being only 4 points from a minimum of 150 in 1866 to a maximum of 154 in 1872. This indicates for this period a high and an increasing degree of prosperity in Class A industries as compared with industries in Class B, and is therefore in conformity with the expectation of theory.

(2) In the period 1874–78 wages fall in both Class A and Class B industries, but the relative decline in Class A is much greater than in Class B; the fall in Class A is from 182 at the end of 1873 to 142 at the end of 1878, or 40 points, while in Class B it is from 153 to 137, or 16 points, indicating a relative prosperity in Class B industries.

Contrasting Class A with Class B industries, the excess in the wage level in Class A industries year by year is as follows:

Year		Year	
1866.....	15	1873.....	29
1867.....	20	1874.....	26
1868.....	23	1875.....	20
1869.....	28	1876.....	16
1870.....	27	1877.....	6
1871.....	30	1878.....	5
1872.....	29		

The rising prosperity of Class A industries in the period 1866–73 and their declining prosperity in the period 1874–78 is clearly evident.

Turning now to individual industries, the table on page 271 presents the arithmetic mean of wages in each separate industry.

Wages rise highest in Period A in the Illuminating Gas, Saw mill, Stone, City Public Works, and Building industries, while they are lowest in the Farming, Woolen Textiles, and Metal industries. The former industries are all in Class A, the latter all in Class B. Every one of the Class A industries, except Carriages, shows wage levels surpassing that of any industry in Class B, and most of the Class A industry wages are consistently higher than those of Class B by a very considerable amount. In Period B, wages in the Pottery and Glass industries, both of Class B, surpass those of any Class A industry except Illuminating Gas, and wages in the Class B industries, Tanneries, Cotton Textiles, and Furniture surpass those of any Class A industries except Illuminating Gas and Saw mills. Farm labor and Furniture industry wages, however, remain low throughout. On the whole these results offer strong evidence of the relative prosperity in Period A of the industries producing for home consumption and their relative unprosperity in Period B. The theory thus receives further confirmation. The industries most affected by the fall in the gold premium consequent

WAGES

Class A. Industries Producing without Foreign Competition for the Home Market

Year	Arithmetic av. class A	Carriages	Saw mills	Building trades	City pub. works	Illuminating gas	Railroads	Stone	Half-year
1866	165	153	165	162	181	183	138	172	Jan.
				171	182	181	148	158	July
1867	171	155	171	174	186	183	155	168	Jan.
				186	188	185	160	162	July
1868	174	156	168	180	186	185	156	178	Jan.
				195	190	186	161	175	July
1869	180	156	167	195	192	195	156	196	Jan.
				199	191	189	162	205	July
1870	181	156	164	192	210	192	165	200	Jan.
				188	202	189	158	201	July
1871	182	158	167	178	213	199	171	188	Jan.
				187	204	195	170	198	July
1872	183	158	171	185	198	196	167	186	Jan.
				190	201	205	171	203	July
1873	182	157	173	180	196	221	158	182	Jan.
				186	195	204	162	198	July
1874	177	151	167	178	199	212	160	182	Jan.
				182	193	200	160	180	July
1875	168	147	160	168	193	200	161	167	Jan.
				170	181	182	158	161	July
1876	160	144	156	160	190	193	150	169	Jan.
				160	166	173	151	141	July
1877	147	139	150	143	150	184	147	140	Jan.
				140	140	165	142	130	July
1878	142	139	147	141	143	169	139	133	Jan.
				137	134	156	138	130	July

Class B. Industries Producing for the Foreign Market, or Subject to Foreign Competition in the Home Market

Year	Arithmetic av. class B	Cotton textiles	Farm labor	Furniture	Glass	Paper	Pottery	Tanneries	Woolen textiles	Metals	Half-year
1866	150	149	150	133	152	140	155	162	150	155	Jan.
										157	July
1867	151	155	148	136	151	143	155	158	148	158	Jan.
										159	July
1868	151	151	146	138	151	143	158	158	149	159	Jan.
										159	July
1869	152	152	144	138	152	143	168	158	150	160	Jan.
										160	July
1870	154	155	141	137	160	148	167	163	154	161	Jan.
										159	July
1871	152	159	138	139	161	144	164	157	150	158	Jan.
										159	July
1872	154	161	135	138	161	152	166	158	153	158	Jan.
										161	July
1873	153	164	132	136	160	146	166	161	152	161	Jan.
										163	July
1874	151	159	130	130	158	144	165	161	154	158	Jan.
										159	July
1875	148	157	128	128	157	143	163	158	152	151	Jan.
										148	July
1876	144	150	119	126	155	142	163	150	148	146	Jan.
										141	July
1877	141	146	110	123	154	139	168	146	145	135	Jan.
										133	July
1878	137	143	101	124	150	132	158	146	143	132	Jan.
										131	July

The wage schedules in the Aldrich Report are given semi-annually while those in the Weeks Report are by years only. In the compilation of averages this arrangement has been preserved. For an average of all industries in either group a single yearly figure was obtained by averaging the half-yearly quotations where they occurred, and taking the figure thus obtained as the yearly average wage for that industry.

Statistics for wages of Farm Labor were not available year by year until 1873. Previous to that date scattered statistics only could be secured and these at intervals of several years It has been assumed that the rise or fall in these wages between one quotation and the next was evenly distributed over the interval between them. This furnishes, of course, a very rough estimate, and the quotations of wages for Farm Labor before 1873 are of but slight value.

upon the large loans placed in Europe in the late sixties and early seventies show by their wage level a relatively adverse position at that time, while in the period when loans ceased and gold as a result appreciated, their relative wage level rises, indicating their prosperity.

VII. Summary

To conclude, the large borrowing operations of the United States inaugurated in the later sixties appeared as an important factor in disturbance of the normal course of trade. The theory here under scrutiny alleges that loans will affect the exchanges, and through them, the gold premium, as the first step in the adjustment process. Hence the movement of the gold premium in the United States was inquired into and contrasted with the value of gold in England and Germany. It appears in the main that the premium on gold in the United States was depressed and elevated according to the expectation of theory. It appears also that an interesting and significant contrast developed between the movement of the value of gold in the United States on the one hand, and in England and Germany on the other; a contrast corroborative of the theory.

The next consideration was that of the movement of trade, and it was found that trade followed the loans, the United States importing largely, pursuant to the placing of loans, and showing an excess of exports when the loans ceased to be floated.

How these trade phenomena were brought about was then tested by an investigation of price movements along the lines suggested by the theory, which was again confirmed by the fluctuations in the prices of export, import and domestic commodities in the manner pre-

dicted, the contrast between prices in England and the United States being specially noteworthy.

Further confirmation was given by the results of the inquiry into wages. These were high in those industries which the theory would expect to be prosperous, and low in those which it would expect to find in an adverse situation. On the whole the theory receives substantial verification.

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PRINCETON, N. J.

ENFORCED PAR REMITTANCE UNDER THE FEDERAL RESERVE SYSTEM

SUMMARY

Introductory. The early development of collections, 275. — The effect of the Federal Reserve Act, 276. — The par remittance plan of 1916, 277. — The Hardwick Amendment and its interpretation by the Federal Reserve Board, 281. — The development of opposition, 283. — The outlook for the future, 286.

ANOTHER chapter in check collection is rapidly nearing completion. By its decision of May 16, 1921 in the case of the American Bank and Trust Company versus the Federal Reserve Bank of Atlanta, the Supreme Court has pointed the way to the close of a noteworthy experiment in banking collection systems.

Starting from the vague provisions of the Federal Reserve Act, unchecked by bankers' protests, state laws, or Congressional acts, the Federal Reserve Board since its inauguration in 1914 had almost succeeded in transforming the clearing and collection system of the country. However a group of southern bankers, embittered by what they believed to be domination by the reserve banks, brought the federal reserve collection policies before the courts; resulting in a decision which doubtless will renew the irregularity in the basis of collections. A large share of the responsibility for this failure may be laid to the inclusion of "par collection" in the plan; contemplating an interference with the "sacred right of profit" of country banks. "Par collection" is the obtaining of remittance on checks from a drawee bank at face value. This was proposed as a remedy for the "kiting" of checks as well as a stimulus to their usage.

With the idea of establishing a collection system of this type, the federal reserve banks demanded that every check sent by them to drawee banks be settled for at face value, the customary charge for remittance — "exchange" — being eliminated. However, as a bank's obligation is to pay demand orders on itself only over its own counter the question which the opposition brought before the Supreme Court was: Has a federal reserve bank the legal right to compel par payment of a check in another city?

The collection problem has long been troublesome to all concerned — the customer of a bank wanting par credit on all checks which he deposits, the banker in turn himself desiring the same from correspondents. As there is definitely a cost to be met in handling checks due to the loss of interest while uncollected as well as to expenses incurred in obtaining remittance, someone has to meet the bill. In some cases it has been the banker, in others the customer.

When immediate credit is given on an uncollected check, no exchange being charged, a loan without interest is made by the bank to the customer. In order to offset the cost thus incurred it became customary among banks to open correspondent accounts with each other under arrangements whereby par collection of checks could be obtained in return for the leaving of substantial balances. Since the larger city banks were especially fitted for the handling of such accounts they took over the problem of obtaining remittance on the checks of country banks.

However, in paying checks drawn upon themselves the latter were inclined to deduct a charge varying from one-tenth of one per cent to one-half of one per cent for the service of remitting. City banks were not usually

able to claim this source of income, the difficulty being not in any different rights or obligations but that most demand orders came in over their own counter for payment.

By many it was believed that the passing of the Federal Reserve Act late in 1913 would put an end to these irregularities and establish for the country one complete and adequate collection system. For instance, Representative Glass in 1914 stated that the effort to eliminate exchange charges had been resisted "with utmost pertinacity" but that Congress by the act had eliminated the wastefulness incident to many independent collection organizations, and had torn down the "toll gates upon the highway of commerce." [1]

What the act contained was a provision allowing the Federal Reserve Board to form a collection system for member and federal reserve banks; the reserve banks to receive checks at par from member banks and charge them for services rendered in clearing or collecting. Member banks were in turn allowed to charge federal reserve banks an amount at least equal to the costs of collection and remittance of checks sent by the latter.

The Federal Reserve Board was thus given wide powers in prescribing the details of the collection system to be established, being limited only by the fact that checks must be received by reserve banks at par and that a member bank might not be prohibited from "charging its actual expense incurred in collecting and remitting funds." [2] The Board proceeded cautiously however, in order, as stated in the first Report, to gain "the harmonious coöperation of banks involved." [3] After a number of conferences and the consideration of several plans, it was decided to experiment, beginning

1. Report of the American Bankers Association, 1914, p. 117.
2. Federal Reserve Act as approved December 23, 1913, Section 16.
3. Federal Reserve Board, Report, 1915, p. 14.

December, 1914 in two districts, St. Louis and Kansas City, with a system of enforced par clearing; the Board having concluded it inexpedient to force an undesired measure upon all member banks at the same time. The experiment under trial made a federal reserve bank a clearing center for its district, immediately charging the account of a bank at par for checks drawn upon it, and crediting it at par for remittances.[4]

Much dissension arose under this system due to its compulsory nature, so that on June 15, 1915 it gave way to a voluntary plan of the same type;[5] the Federal Reserve Board believing that a more favorable attitude would be attained if the pressure of participants alone forced reluctant banks to coöperate. Member banks, however, did not respond with the alacrity that was desired, only 25 per cent having joined in the first month. Consequently the federal reserve banks were in doubt as to the best method of procedure; the majority thought a mandatory system necessary.

A committee of federal reserve agents, formed to consider the subject of collections, came to the conclusion in October, 1915 that the problem was one of reserves rather than of transit facilities, recognizing that little could be done in the establishment of a collection system until the reserves had been transferred to federal reserve banks from reserve agents, thus ending the tangle of reciprocal collection arrangements. In June, 1916, as a result of the findings of the Committee, a plan was adopted, effective July 15, 1916. In general the provisions then outlined are still in effect and form the center of the present controversy.

4. No charge was made by the federal reserve banks for their services.

5. This was adopted in all districts except Kansas City, where the compulsory system still prevailed.

Perhaps the most important recommendation of the Committee was to begin a system of deferred credit by which checks would become available as reserve at federal reserve banks in accordance with a schedule on which was figured the average time necessary in obtaining collection from a particular locality. The member bank depositing checks would thus wait until the drawee bank had time to receive, examine, and remit before credit would be given on the deposit.[6]

The plan further provided that: (*a*) the sending of checks by member banks to federal reserve banks be voluntary, (*b*) all members be compelled to pay without deduction checks drawn on them sent by the federal reserve bank of their district, (*c*) all members be allowed to deposit such checks as could be collected at par, (*d*) the expense of transmission of funds be borne by federal reserve banks.

The hope that fifteen thousand banks would be included on the collection list was very nearly realized, for 14,656 joined the first month, followed by consistent gains. As there were at this time less than eight thousand members of the federal reserve system, about one-half of those on the "par list" were non-member banks. In influencing the latter to remit at par, use was made of two effective devices: (*a*) presentation by institutions in the locality of the drawee bank, (*b*) tendering of checks for cash payment over the counter of the drawee bank by employees of a reserve bank. Indeed, par remittance by mail was not usually attained through any desire on the part of a non-member bank to secure the advantages coming from affiliation with a unified collection plan. Non-members failed to look upon the

6. It is worthy of note that at this time the Federal Reserve Board abandoned its par collection plan, in that postage or express was allowed to be deducted from remittances, and in addition a deferred payment obtained by the reserve banks. The subsequent plan may more accurately be described as a par remittance system.

curtailment of their exchange profit as "slow education" — the term employed by federal reserve officials.

So it was that federal reserve banks employed institutions and individuals as means of forcing par payment. Most important as collection agencies were banks and express companies, altho the services of both were rendered incomplete since they did not have offices in every city or town where a non-par remitting bank was located. However the use of banks had the added advantage of being both inexpensive to the federal reserve bank and serviceable to the agent bank; the latter being able to obtain the usage of the proceeds of checks during the time elapsing between par payment, obtained over the counter of the non-member, and the charging of the draft in settlement against the reserve city account of the agent bank. But the final and supposedly clinching method of pressure was direct presentation by traveling agents hired by a federal reserve bank, payment to be accepted in currency only. The expense involved in such presentation, however, rendered it expedient only when others failed or were impossible of application. The call for cash over the counter of a bank made it exceedingly difficult to keep an adequate amount on hand to meet all the demand obligations that the federal reserve bank might tender, especially if several days elapsed between days of presentation. The earlier method of payment had been by exchange on a reserve city resulting in the keeping of a considerable balance with reserve agents. This balance, however, was not available to meet a current demand for cash. Consequently, an objecting non-member would have to withdraw cash in order to protect itself from embarrassment, thus foregoing interest that would have been received on a reserve city account.

One by one the non-members gave in, preferring to

lose the exchange profit which they had previously deducted from remittances rather than suffer the inconvenience and expense caused by direct presentation. As would be expected, the federal reserve system was none too popular among non-member banks; this resentment being voiced in resolutions of bankers' associations, bills presented to Congress, state laws, and newspaper articles as well as injunctions. Member banks were also for the most part only too glad to cooperate in the movement to have the federal reserve collection policies changed, for many of them too were suffering a loss of exchange.

Within four months after the formation of the enforced par remittance program of the Federal Reserve Board, the American Bankers' Association in its 1916 meeting went on record almost unanimously in opposition and formed a committee to urge upon Congress and the Reserve Board the necessity of "reasonable charges." As a result of the protests, Senator Hardwick on May 9, 1917 offered a "rider" to the bill then under consideration in the Senate to amend the Federal Reserve Act, legalizing exchange charges to the amount of one-tenth of one per cent. After considerable discussion, the bill as amended was passed by a scant margin. The Senate and House bills as passed not being identical, a conference committee was appointed to secure uniformity. Before this committee had acted, the House hearing of the Senate's action in adding the Hardwick Amendment, voted at the suggestion of Representative McFadden to instruct its conferees to "agree in substance" with the Hardwick Amendment. While the matter was under consideration in the committee, however, much pressure on the part of credit men's associations, wholesale and retail merchants, city bankers,

and federal reserve banks was brought to bear against this amendment. Even President Wilson wrote asking that this section be removed from the bill.

Consequently the committee,[7] despite the instructions to include the Hardwick Amendment in the Conference Bill, amended it to read: "That nothing in this or any other section of the Act shall be construed as prohibiting a member or non-member bank from making reasonable charges, *to be determined and regulated by the Federal Reserve Board*, but in no case to exceed ten cents per $100 or fraction thereof, based upon the total of checks and drafts presented at any one time, for collection or payment of checks and remission therefor by exchange or otherwise; *but no such charges shall be made against the federal reserve banks.*"

This report coming before the Senate met with immediate opposition, Senator Hardwick insisting that the substance of the section had been completely altered. Senator Owen. however, speaking for the committee, claimed that the measure could in no way affect the actions of non-member banks, who were the chief objectors to the passing of the conference bill. The result was that the Senate acted favorably upon the Report and on June 14th it came before the House. There again the committee received severe criticism for adding words to nullify the Hardwick Amendment, agreed upon by both the House and the Senate. The measure was however passed, the President signing it on June 21st.

From that date, the federal reserve banks began, even more extensively, the move to establish a "universal par collection list": one that would include both member and non-member banks. Failing to accept the interpretation of Congress on the Hardwick Amend-

7. It is interesting to note that five out of the six members of the Conference Committee had previously gone on record in opposition to exchange charges.

ment, the Board looked upon it as "a mandatory requirement that non-member as well as member banks shall remit absolutely at par,"[8] later stating the reason for this interpretation to be that "the federal reserve banks are affording all member banks certain reciprocal advantages in the collection and clearance of checks and because the federal reserve banks are obligated to receive checks at par, they may properly expect remission on the same basis."[9] Meanwhile the Attorney General had ruled that federal reserve banks might not pay exchange.[1] But, instead of failing to accept checks drawn upon non-member banks known to be in the habit of deducting exchange charges, the federal reserve banks chose to put into effect a policy designed to make them pay remittance letters at par.

So despite the opinion of the Attorney General and the intent of Congress that the provisions of the Amendment of June 21, 1917 did not apply to state banks not connected with the federal reserve system as members or depositors, the reserve banks set out to make every state an "all par state." Their position is well stated by a committee of federal reserve agents: "The banks and the public need a system that is able to collect all items. The par collection system is not a local or selfish undertaking for the benefit of member banks, but is a national enterprise for the convenience of the public, and the promotion of commerce, and concentrated and persistent efforts will be made to make the par list complete."[2]

The success of these attempts is testified to by the fact that from July, 1917 the number of non-member

8. Federal Reserve Bulletin, 1917, p. 501.

9. Ibid., p. 662.

1. See letter of Attorney General, Report of Federal Reserve Board, 1918, p. 76.

2. Report of Federal Reserve Board, 1918, pp. 75, 76.

banks remitting at par underwent a steady increase until in January, 1921 over 91 per cent were on the "par list"; the remainder being small unaffiliated state banks in the South, where the federal reserve banks were only just beginning their "educational process."

But this result was not amicably attained. Bankers' associations were ever willing to condemn the federal reserve action, altho few cared to carry the protest into court. As the reserve banks started their program in the South, opposition took the definite forms of: (*a*) an attempt by legal process to restrain the federal reserve banks from collecting at par, (*b*) the influencing of state legislatures to pass laws upholding exchange charges on remittances, (*c*) the attempt to obtain a change in the national statutes, definitely legalizing exchange, (*d*) the bringing of pressure to bear on the Federal Reserve Board and banks to obtain a reversal of their policy.

The legal battle came as a result of the ill-fated campaign of the Federal Reserve Bank of Atlanta to enforce par remittance. Governor Wellborn of this reserve bank had in December, 1919 set out to put all non-member banks in the Atlanta District on the "par list," a step already accomplished in the majority of the districts. Unfortunately for the reserve bank there was included in his letter to non-members asking for par remittance the statement that he "would very much regret to adopt other methods of collection that would prove embarrassing, annoying, and expensive" to banks not coöperating. In response, a number of banks headed by the American Bank and Trust Company filed a bill in equity in the Fulton County Court of Georgia "denying the right of the Reserve Bank to assume jurisdiction over them and coerce their action."

As relief, an injunction was asked permanently restraining the Federal Reserve Bank from collecting checks drawn on the plaintiffs except "in the usual and ordinary channel of collecting checks through correspondent banks or clearing houses."

The case was removed to the United States District Court for the Northern District of Georgia upon the motion of the defendant, the Federal Reserve Bank of Atlanta, where it was heard on its merits; a restraining order being granted the plaintiffs pending the hearing. At this hearing, it was alleged that the methods which the Federal Reserve Bank of Atlanta intended to put into use were "tyrannical and *ultra vires* the charter of the Reserve Bank" and employed to make the country banks render a valuable service without compensation.

In defense, the Federal Reserve Bank asserted its unqualified right to collect by any method checks backed by sufficient funds; it being the contract of the drawee bank to pay on demand. Since federal reserve banks were by their charter (the Federal Reserve Act) prohibited from making payments to remitting banks for services, the Atlanta Federal Reserve Bank was disabled from collecting through the regular channel of correspondence or clearing as long as a bank insisted on deducting the cost of remittance. Thus they maintained that they were forced to adopt other methods of obtaining collection.

The result was that on April 3, 1920, the United States District Court for the Northern District of Georgia affirmed the right of the Federal Reserve Bank to obtain collection by agents. This decision was affirmed by the United States Circuit Court of Appeals, Fifth Circuit, to which it was appealed. When, however, the matter came before the Supreme Court of the United States the decrees of the lower courts were reversed; the higher

court holding that if the plaintiffs could establish the purpose of the Reserve Bank to be to break down the business of the former as now conducted, a permanent restraining order should be granted. On this question of fact the case is now in the Northern District Court of Georgia where doubtless the plaintiffs will be successful, as they have the written statement of the Governor of the Federal Reserve Bank of Atlanta that failure to co-operate with the federal reserve system would cause annoyance, embarrassment and expense.

Destined probably to less success than litigation is the effort to obtain effective authorization of exchange charges by state legislatures. The difficulty is not that state legislatures are unwilling to pass bills to secure this end, but that the laws enacted are either discriminatory as between persons, or attempt to make checks legal tender for some purposes, resulting in unconstitutionality. Within thirteen months, laws for the purpose of allowing exchange charges went into effect in eight states: Mississippi, Louisiana, South Dakota, Georgia, Alabama, North Carolina, Tennessee, and Florida. A test case is now before the Superior Court of Union County, North Carolina, where a decision will be handed down on the constitutionality of the North Carolina law. Altho any verdict on the Georgia case will not settle the point at issue in the North Carolina dispute, it will doubtless be true that if a final judgment is given on the former favorable to the non-member bankers, proceedings will stop in North Carolina.

Foremost among those urging the continuation of exchange charges is the National and State Bankers' Protective Association, formed in February, 1920 to unify the action of those opposing par remittance. Largely through their efforts the exchange laws of the various states were passed and pressure brought to bear

upon Congress and the Federal Reserve Board. Congress, however, failed to act favorably upon the bills and resolutions presented to it, and the Federal Reserve Board took the matter none too seriously; Governor Harding of the Board stating that "a diversion of this sort is entertaining in a way, because it diverts our mind from the serious problems that are ahead of us." [3] The Association nevertheless succeeded in bringing the issues clearly into view for the first time.

Today the dream of universal par remittance is fading. The peak of the "par list" was reached the first of last year, and the number is slowly being diminished as banks take advantage of rights granted them under injunctions. Not yet, however, has the struggle been terminated. Both sides await the decision of the Supreme Court on the question of fact in the Georgia case. Altho it has indicated a stand in favor of non-member banks, this is not conceded by federal reserve officials. However, if the non-member banks gain a favorable decision it is probable that member banks will be accorded the same rights through an amendment of the Federal Reserve Act, since the Board has pledged itself to equality on this question. The close of the contest has not been reached but the way is indicated toward a return to the irregularities of the collection system of ten years past.

If, then, the federal reserve collection policies are about to be terminated, there seems no substitute plan adequate to the need. Congress cannot greatly help for its mandates can apply only to member banks, outnumbered two to one by non-member institutions. So the prospect of a unified collection system seems even as dark as in the days when the Owen-Glass Bill was in the

3. Hearing on H. Res. 476, Rules Committee, 66 Cong., p. 56.

period of formation. There are, however, possibilities in the present situation. If the Federal Reserve Board is able and willing to modify its collection program to act in the capacity of a unified agency, collecting under an arrangement agreeable to most banks, much benefit will inure to banks and to commerce.

Such a plan might provide that: (*a*) it be entered into by all member or non-member banks desiring affiliation; (*b*) each bank be permitted to deduct an agreed per cent (i. e., one-eighth of one per cent) from all remittance letters for exchange, nothing to be allowed as at present for postage or express on remittances;[4] (*c*) federal reserve banks accept checks on deposit in either of two ways: (1) for credit to the amount of the face of the check, this to be deferred for the average period necessary to secure remittance, (2) for immediate credit, exchange to be charged based on the amount of the check and the number of days necessary for collection; (*d*) the federal reserve banks assess a service charge against each bank collecting through the system, based upon the total of checks sent each month to the reserve banks, covering costs incurred in collection, including adequate compensation for the services of the reserve banks.

The more obvious advantages of this arrangement lie in the decreasing through quick collection of the large uncollected funds accounts — the float — and in the forming of centers where checks may be discounted for immediate credit. Equally important, however, is the bringing together of member and non-member banks on a coöperative rather than a compulsory basis of "slow

4. It might well be urged that if a uniform rate were fixed, applicable to all banks, injustice would be worked on those at a distance from a reserve city. Perhaps a service charge varying with the location of a bank would be the remedy. For other suggestions see letter of the Committee of Five of the American Bankers Assn. to the Federal Reserve Board, March 12, 1918.

education." Admittedly much dissension would follow the adoption of this plan — especially after the recent coercion — but it would in all probability secure the support of the American Bankers' Associasion, giving it a fair chance of success.

The greatest difficulty, however, lies in the matter of reserves, for state and federal laws offer a variety of reserve requirements, serving to render difficult a sound collection basis. State banks hesitate to forego the interest and low exchange charges as well as credit on the legal reserve received from an account in a reserve city, and the banks holding such accounts regret the possible loss of a profitable connection. One escape from this lack of uniformity is for state banks to join the federal reserve system. Over 20 per cent of those eligible for charters have already taken this step. However, largely because of the severity of membership requirements, only one-quarter of the non-member banks of the country are eligible. If the largest obstacle to an increasing membership — the capitalization required — is lowered, the country will have no less sound banking.

A large share of the solution of the exchange problem, however, lies in the hands of the individual banker and the public. If both would recognize that a check drawn upon another city is not worth par, but is a loan until collection is obtained by the one advancing funds, much light would be thrown upon the collection problem. In the South and West especially it has been customary to deduct exchange largely from remittances and accept deposits of checks at par; the opposite being more nearly true of the other banks of the country. Banks aim to break even at least on exchange. In whatever form it be paid, whether by deduction from remittances, payment upon deposit, or by compensating balances, the charge still remains. Assuredly, the amount of the charge

should be made the subject of a comprehensive regulation, but this does not deny its justice.

Indeed both bankers and the public join in the benefits which would accrue from a unified collection system. Such a system may be obtained, if at all, by the coöperative effort of bankers under a plan which would not compel the performance of the remittance service at a loss, as did the par remittance program.

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THE RENT OF MINERAL LANDS

SUMMARY

I. Present disagreement on analysis of mine royalties, 290. — Ricardo's analysis, 291. — Modern writers: Taussig, Marshall, 292. — Limitation of Ricardian theory to settled countries and established industries, 293. — Rent of mineral land and agricultural land distinguished, 294. — Analysis of royalties in practice, 296. — II. Proof of the theory. Differences in royalties due to quality of coal, 297; to date of lease, location, fertility of mines, 299. — Relation of thickness to value of seam, 300. — The no-rent mine, 301. — Mine royalties in France, England, the United States, 302. — Graphic representation, 308. — Extensive and intensive margins; diminishing returns, 311. — III. Nationalization. Possible division of royalties if mines are purchased; if confiscated, 312. — Possible results under government operation, under lease to private operators, under free mining, 313. — Effect of nationalization on price of coal; on wages, 314. — Conclusion, 317.

I

SINCE the days of Ricardo most economists have contented themselves with a discussion of the doctrine of rent only as it applies to agricultural land or urban land. If mineral or forest land has been mentioned, it has usually been dismissed with a brief paragraph or two based largely on generalizations and not on facts. So unsatisfactory has the treatment been that today — after a hundred and twenty-five years of discussion of the rent theory — there is no generally accepted analysis of the return on mines. Many modern economists and writers do not mention the subject; those who do, are not agreed in their statement of the theory. One group, represented by Professor Taussig, maintains that mine royalties are closely analogous to the rent of agricultural

land. Another group, including chiefly the mineral owners of England, maintains that they are not rent at all but a consideration for the mineral removed from the deposit. Still another group, represented by Professor Marshall, maintains that mine royalties are both rent and compensation for the mineral.

Ricardo did not hestitate to extend his doctrine of rent to all classes of land, yet he understood the modifications that must be made before it could be applied to mineral lands. His two chapters on rent in the *Principles* should be studied together. In Chapter II he stated that "the compensation given for the mine or quarry is paid for the value of the coal or stone which can be removed from them and has no connection with the original and indestructible powers." [1] Yet in Chapter III he said that "there are mines of various qualities, affording very different results, with equal quantities of labor. . . . The return for capital from the poorest mine paying no rent, would regulate the rent of all the other productive mines. This mine is supposed to yield the usual profits of stock. All that the other mines produce more than this, will necessarily be paid to the owners for rent." [2]

The apparent inconsistency may be easily explained. In Chapter III, which is entitled "The Rent of Mines," Ricardo was concerned only with the return on mines due to their original and indestructible qualities. He was assuming (tho he failed to make clear the assumption) that the compensation paid for the mineral removed, mentioned in Chapter II, had already been deducted. Ricardo undoubtedly believed that mine royalties had a dual character — that they were partly a payment for minerals removed and partly a differen-

1. Ricardo, Principles of Political Economy (Gonner edition), p. 45.
2. Ibid., p. 62.

tial return due to the superior location or the greater fertility of particular mines.

Professor Taussig is of the opinion that the rent of mines, particularly in old countries, is closely analogous to the rent of agricultural land and follows the same economic laws. He doubts whether any surplus exists in new countries or in the mining of those minerals for which the risks of prospecting and exploitation are so great that the large profits on a few mines no more than offset the losses on the others. Mining for gold or copper is particularly risky. He remarks: "Where royalties are paid in well explored countries on minerals whose qualities and value are reasonably well known, they are simply rent. Such seems to be the case with royalties on English coal mines." [3] But Professor Taussig does not agree with Ricardo's contention that a part of the royalty is compensation for the mineral removed. "The fact that a store is physically limited does not enable its owner to secure a price. Sand and clay are thus limited; but the available quantity is so abundant that a clay pit or sand deposit is worth nothing unless it has an advantage of situation. It may be doubted whether any payment at all, royalty or what not, can be secured by the owner of the poorest mine, assuming he has done nothing to develop it. Deposits of this sort are at the margin of utilization and at the margin there is no surplus of any sort. . . . Rent proper shows the same sort of development on mines as on other natural agents." [4]

Professor Marshall takes the same position as did Ricardo. He believes that mine royalties are both compensation for the mineral removed and economic rent. "A royalty is not a rent, tho often so called. For, except when mines, quarries, etc., are practically inexhaustible,

3. F. W. Taussig, Principles of Economics, vol. ii, p. 96.
4. Ibid.

the excess of their income over their direct outgoings has to be regarded, in part at least, as the price got by the sale of stored up goods — stored up by nature indeed, but now treated as private property." [5]

I agree with Professor Taussig that there is probably no surplus from mines in new lands. The large profits no more than offset the risks and dangers of exploration and the many losses that occur. It is a generally accepted belief that the total expended in the search for gold far exceeds the product from gold mining. But this sort of situation is not peculiar to mines. The same statement is probably equally true of agricultural land in a newly settled country. During the last century millions of acres of land were given away by the United States government in Nebraska, Kansas, and other middle western and western states, or the land was sold at a few cents an acre. During the lifetime of the original settlers that land sold for $50 an acre or even more. But how much of that increase in value was surplus or unearned increment and how much of it was necessary to compensate the homesteaders for the risks and dangers of pioneering? How much of it was necessary to offset the losses in regions where the increase in land values did not occur? It is estimated that in one period of drought a quarter of a million of people were driven out of western Kansas alone.

The Ricardian rule of rent cannot be applied without qualifications to either agricultural or mineral land in a new country. In its unqualified form it fits conditions in a settled country such as England and in formulating the doctrine Ricardo had the farm lands of England in mind. After the simple statement of the rule is understood it may then be extended to other lands where the land question is more complicated than in England. To

5. Marshall, Principles of Economics, p. 438.

get a similar statement of the theory as applied to mineral land we will do well to first examine the nature of mine royalties in a long-established country such as England and in a long-established mineral industry such as coal mining. In a country that has been well explored and prospected by geologists little uncertainty remains regarding the extent and nature of the mineral deposits — particularly those of greatest economic importance, namely coal and iron. Even in the United States, a comparatively new country, the government has about completed the mapping and valuation of the coal lands of the public domain. In order to avoid unnecessary complications in making a typical statement of the theory I shall confine my discussion largely to the coal mines of England.

I am inclined to accept Ricardo's analysis of mine royalties. They are made up of two elements governed by entirely different economic laws. First there is a part representing "the diminution in value of the mine regarded as a source of wealth in the future which is caused by taking the ton out of nature's storehouse," as Professor Marshall expresses it. It is not rent. It is a consideration for the sale outright of the mineral removed just as tho the owner of a large farm had sold a cottage site. It is principal, not income. Then there is another part of the payment that arises because of the superiority of a given mine over the marginal mine. It is income. It is rent in the strict economic sense and is governed by the Ricardian doctrine.

That mine royalties are of the nature of economic rent is recognized by Professor Taussig, but he does not believe that any payment is made for the mineral removed. Mine royalties in his view are analogous to the rent of agricultural land. But obviously there is a difference. The owner of a farm expects his land to be

returned at the expiration of the lease in as good condition as when first rented. There should be no deterioration in fertility. Careful farming may even improve the land and a wise farmer will prefer to allow his land to be worked, under best farming methods, rent free rather than allow it to lie idle. The situation is not the same for mineral land. Its yield is drawn from a store that cannot be replenished. The coal removed from the seam cannot be replaced either for this generation or for a later one. Every ton extracted decreases the stored up treasure by that much and the deposit is certainly less valuable than before the coal was removed. The mine that has been worked cannot be returned to the owner unchanged at the end of the lease.

It is true that there are coal deposits so situated or with seams lying at such great depths that no one will pay a royalty on them. Perhaps they can be worked profitably if no royalty is paid, and the owner may work them himself, but he will not permit anyone else to work them without some compensation. He gains nothing; he loses an asset that may bring in an income for himself or his heirs with a change in market conditions. Not only would there be the exhaustion of a store that might some day prove valuable, but the opening of a mine does not improve what the Scotch call the amenities of the neighborhood. The owner of the surface may be compensated for the damage done to that surface through subsidence, but there can be no compensation for the marring of the beauty of the locality with an ugly mine mouth, a black coal tipple, or a dump heap. As a witness before the British Coal Industries Commission aptly expressed it: "A colliery chimney is not an attraction to an estate; it may be as tall as Nelson's Monument, but it behaves somewhat differently."[6]

6. Coal Industries Commission Report (1919), vol. i, p. 315.

Not only may the surface be damaged by subsidence but the construction of a network of underground workings may result in such a lowering of the water table that the land will yield much less in grass or grain. The owner of the coal land will surely demand payment for the coal removed if he permits the deposit to be worked. That payment has been called the minimum royalty, but I prefer to call it the marginal royalty since the term minimum royalty is also applied to the fixed rent per acre that is sometimes paid on coal land. The mine commanding only the marginal royalty is the marginal mine.

The dual character of mine royalties is recognized in practice by mine operators. The late Dr. Rossiter W. Raymond, a distinguished American mining engineer, then secretary of the American Institute of Mining Engineers, summarized the American position as follows in his testimony before the British Royal Commission on Mining Royalties appointed in 1889: "With us the royalty always settles itself according to special advantages. The lowest royalty is the royalty that must be paid, or else the landowner would not care to let the mine be worked. On top of that, you have all those higher royalties coming in to represent special natural advantages." [7] Before a more recent British coal commission, Mr. T. H. Bailey, a mining engineer of Birmingham, stated that "strictly speaking, royalties are partly rent or income, and partly capitalization of assets." [8]

True, a group of writers made up largely of British mineral land owners and their representatives maintains that a royalty is a payment for the mineral re-

7. Third Report, Royal Commission on Mining Royalties, British Sessional Papers, 1890–91, vol. xli, p. 10.

8. British Coal Industries Commission Report (1919), vol. ii, p. 691.

moved and nothing more. They do not agree with Ricardo, or Marshall, or Taussig in the application of the Ricardian rent doctrine. They fail to take into consideration the "special natural advantages" mentioned by Dr. Raymond. They state, for example, that "in all cases the colliery proprietor (if not himself the owner of the coal) pays a royalty, i. e., a purchase price for unsevered coal," [9] or that "a royalty is payment of purchase of coal," [1] or again that "this royalty, or sum, is often referred to as rent, but is in fact a payment out and out for the coal worked which disappears from the mine." [2] Such a position is difficult to defend. If mine royalties are solely a payment for the mineral obtained from the mines how can the differences in the royalties paid on mines in the same neighborhood — even situated side by side — producing coal of exactly the same quality be accounted for? or the fact that mines in different parts of the country command different royalties? Only by the Ricardian doctrine can these differences be explained.

II

Mine royalties may differ because of a difference in the quality of the coal. In the United States royalties as high as 50 cents per ton are paid on anthracite coal and 10 cents or less on some grades of bituminous. But this difference does not necessarily represent any surplus. It may be due to a difference in the marginal royalty. The two grades of coal have different values. They bring different prices in the market. The owner of the anthracite deposit will demand a higher marginal

9. British Coal Industries Commission Report (1919), vol. i, p. 300; testimony of Henry Louis, Professor of Mining, University of Durham.

1. Ibid.

2. Ibid., p. 312, testimony of R. F. Pawsey, secretary of Mineral Owners Association of Great Britain.

royalty than the owner of the bituminous deposit since a more valuable product is being taken from his land. A true surplus arises only when a given amount of labor and capital is able to obtain a greater tonnage of coal in one mine than in the other. Accordingly in making comparisons I shall assume that the coal or mineral obtained from the mines compared is of the same quality and that the mines are in direct competition.

Mine royalties may differ because leases have been made at different times. In a lease made in a boom year a higher royalty may be exacted than in a lease made in a year of general industrial depression. I therefore assume that the leases on the mines compared have been made at the same time and under identical conditions.

Mine royalties may differ because of what Ricardo called the original and indestructible powers of the land — what Professor Ely calls the inseparable conditions of the land. These powers or conditions are both extrinsic and intrinsic. The extrinsic powers include transportation and market; the intrinsic, thickness of seam, depth, angle of seam, faulting, nature of roof, and the like. "The workability of any coal will ultimately be determined by two offsetting factors — (1) its character and heat-giving quality, whence comes its value, and (2) its accessibility, quantity, thickness, depth, value, and other conditions that affect the cost of its extraction." [3]

One of the indestructible powers of all land, mineral or agricultural, is location. As with agricultural land, the location of a mine near a market will cause it to yield a surplus over a mine less favorably located and subject to high transportation charges. Mines located

3. Bulletin 537, "The Classification of Public Lands," U. S. Geological Survey (1913), p. 67.

near industrial or shipping centers command higher royalties than those more distantly located. In the islands north of Alaska there are large deposits of coal but they are so far removed from market that not only do they pay no royalties but they are still untouched by the hand of man. In West Virginia within 200 miles of Fairmont there are large areas of coal land, owned by the Baltimore and Ohio Railroad, situated so far from a railroad that they are still undeveloped. The United States Geological Survey in its classification and valuation of government coal lands places on lands more than 15 miles from a completed railroad a value one-half of the amount which would be fixed if they were less than 15 miles from a railroad.[4]

Two mines situated side by side and producing the same grade of coal may command different royalties because of differences in intrinsic factors. Their seams may lie at different depths or angles. The seams of one may be thicker or contain less slate than the seams of the other, or they may be less faulted or broken. The material of the roof of one mine may be stronger making necessary less timbering. To describe all these points of superiority that one mine may have over another a term ordinarily applied to agricultural land may be used: one mine is more *fertile* than the other. Because of its greater fertility a smaller quantity of labor and capital is required to extract a ton of coal. The owner of the more fertile mine can demand a higher royalty than the owner of the less fertile mine just as the owner of the more fertile farm demands a higher rent than the owner of the less fertile farm. In Kentucky the usual royalty on coal from seams 3 to 4 feet thick is 8 cents per ton, from seams 4 to 5 feet thick, 10 cents, and from seams 5

4. Bulletin 424, U. S. Geological Survey (1910), p. 41.

to 6 feet thick, 12 cents.[5] The difference in royalty is a surplus and is economic rent. Before the British Commission on Mine Royalties already cited Sir Lowthian Bell, President of the Cleveland Mine Owners' Association, stated that: "The royalty dues paid in Cleveland for ironstone are about 6 pence per ton. In Lincolnshire or Northamptonshire they are sometimes double this sum because instead of expensive shafts and machinery being required, the mineral lies near the surface with a covering of greater or less thickness of sand or rock." [6]

TABLE I[7]

Thickness of bed in feet	Average cost		Approximate combination cost	Value by inversion
	Anthracite	Bituminous		
1	2	3	4	5
10	1.00	1.00	1.00	1.00
9	1.01	1.03	1.02	.97
8	1.045	1.075	1.05	.95
7	1.10	1.126	1.10	.91
6	1.18	1.20	1.20	.83
5	1.35	1.30	1.33	.75
4	1.65	1.45–1.55	1.50	.66
3	2.13	2.00	2.00	.50
2	3.36	3.00	3.00	.33

Table I is an adaptation of a table published by the United States Geological Survey showing the relation of thickness to the value of a bed of coal. It is used by the Survey in determining the value of coal beds under government land. In the first column is given the thickness of the seams in feet, ranging from 2 feet to 10 feet. A seam with a thickness of 10 feet is taken as a standard

5. Bulletin 424, U. S. Geological Survey (1910), p. 10.

6. First Report, Royal Commission on Mining Royalties, British Sessional Papers, 1890, vol. xxxvi, p. 149.

7. Adapted from table, U. S. Geological Survey, Bulletin 537 (1913), p. 84.

and in columns 2 and 3 the cost of working such a seam is unity or 1.00. The costs of working the thinner seams is expressed in terms of the cost of the thicker seam. A seam of anthracite 2 feet thick costs 3.36 times as much to work as a seam 10 feet thick. Column 4 is an approximate combination of the average cost of working anthracite and bituminous coal. Column 5 shows the relative value of the seams and is obtained by inverting the cost of extraction, or in other words by dividing 1.00 by the figures in column 4. A seam 5 feet thick has a value 75 per cent of the value of a seam 10 feet thick, and a seam 2 feet thick is valued at only 33 per cent of the value of the 10-foot seam.

The Ricardian theory of rent involves the concept of no-rent land, or land that produces only enough to pay the costs of production. Similarly there must be a no-rent mine or a marginal mine. Economists have been misled in their efforts to find that no-rent mine. They have perceived that all mines, even the poorest, yield some royalty, but they have not understood that the royalty on the poorest mine is not economic rent but compensation for the mineral removed. The mines paying such royalty are the no-rent mines. They are the marginal mines.

England's position as a manufacturing and commercial nation may be said to rest upon a foundation of coal and iron, and the English have always shown a keen interest in their deposits of those two important minerals, especially since Jevons in his book on *The Coal Question* pointed out that the deposits were not inexhaustible. Some thirty years ago a royal commission was appointed to investigate the effect of royalties upon the mining industry. In their voluminous report are many bits of evidence that prove the correctness of the present analysis of mine royalties. In more recent years

other commissions have been appointed to study various coal problems, notably the Coal Industries Commission of 1919. Tho the later commissions have given some attention to the nature of mine royalties they have brought to light very little information not already published by the earlier commission.

The investigation of the Royalty Commission of 1889–93 was not limited to the English mining industry, it included a study of the mining laws of the leading mining countries of the world. One of the laws reported on was the important French mining law of 1810 which provides, among other things, for a proportional royalty to be paid by the mine operators to the owners of the surface. Table II shows the usual royalties paid at the time of the investigation (1890) in the basin of the Loire.

TABLE II.[8] — MINE ROYALTIES IN BASIN OF LOIRE (1890)

Depth of seam	Thickness of seam			
	A	B	C	D
	2 meters and over	1 to 2 meters	½ to 1 meter	Less than ½ meter
I. In pits 50 meters deep	1/6 of y'd	1/9 of y'd	1/12 of y'd	1/24 of y'd
II. " " 50 to 100 m. deep	1/8 "	1/12 "	1/16 "	1/32 "
III. " " 100 " 150 " "	1/10 "	1/15 "	1/20 "	1/40 "
IV. " " 150 " 200 " "	1/12 "	1/18 "	1/24 "	1/48 "
V. " " 200 " 250 " "	1/14 "	1/21 "	1/28 "	1/56 "
VI. " " 250 " 300 " "	1/16 "	1/24 "	1/32 "	1/64 "
VII. " " beyond 300 " "	1/20 "	1/30 "	1/40 "	1/80 "

The French law recognizes that mines differ in fertility and establishes a differential based upon both thickness and depth of seam. The marginal mine is the mine with the deepest and thinnest seams that can be worked at the market price for coal. If the demand for coal is such

8. Adapted from Final Report, Royal Commission on Mining Royalties, British Sessional Papers, 1893, vol. xli, p. 64.

that mines more than 275 meters deep or with seams less than $\frac{3}{4}$ meters thick cannot be worked profitably, the mines at those limits are the marginal mines and the marginal royalty is $\frac{1}{8}\frac{1}{2}$ of the yield as shown by Group VI, column C of the table. A mine 75 meters deep and with seams $2\frac{1}{2}$ meters thick would command a royalty of $\frac{1}{8}$ of the yield. The marginal royalty would be $\frac{1}{8}\frac{1}{2}$ of the yield, the remainder — $\frac{1}{8}$ minus $\frac{1}{8}\frac{1}{2}$ or $\frac{3}{8}\frac{3}{2}$ of the yield — would be economic rent. The French law of 1810 may not express the true differential between the various grades of mines but it does recognize that such a differential exists and that even the poorest mine worked pays some royalty. The marginal royalty, provided for under the French law, must not be confused with payment for damage to the surface which is covered by an entirely different provision.

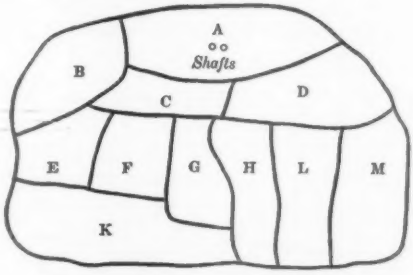

FIGURE 1. Area represented = 2000–3000 acres.

Figure 1 is a diagram of the various small holdings in a coal field attached to a large colliery in Durham, England. Each of the plots has a different owner; all are leased to the operator of the colliery. The shafts for the field are located in plot A and all the coal leaves the ground there. Wayleave charges and easement rents must be paid to the owners of the plots through which coal is carried on its way to the shaft and a shaft rent

must also be paid to the owner of A. In other words the plots at a distance from A are at a disadvantage and their costs of production are greater than those of A. Plot A should therefore command the highest royalty, the differential being economic rent. Table III shows the royalties, easement rents, etc., paid by the various holdings in 1889.

TABLE III.[9] — ROYALTIES, EASEMENT RENTS, ETC., PAID IN 1889 IN COAL FIELD SHOWN IN FIGURE 1

Royalties reference letter	Royalty tonnage rent on coals worked	Other royalty proprietors charging easement rents	Easement[1] rents per ton	Total of mine and easement rent per ton	Date of leases
	pence		pence	pence	
B	4.22	− A	1.85	6.07	1849
C	4.25	− A	1.85	6.10	1856
D	5.33	HCA	2.55	7.88	1864
E	4.29	CA	1.94	6.23	1853
F	3.61	GHCA	3.17	6.78	1843
G	3.79	HCA	2.55	6.34	1880
H	3.75	CA	1.95	5.70	1873
K	3.82	GHCA	2.86	6.68	1865
L	4.00	DHCA	3.04	7.04	1886
M	4.00	DHCA	3.04	7.04	1878
Av. exclusive of A	4.11		2.48	6.59	
A	5.00			5.00	1847

It will be noted that the highest royalty per ton is paid on holding D — not on holding A — tho D must also pay easement charges to the owners of H, C, and A. This apparent contradiction of the rent theory may be accounted for by the fact that the leases for A and D were not made under identical conditions but in dif-

9. First Report, Royal Commission on Mining Royalties, British Sessional Papers, 1890, vol. xxxvi, pp. 32, 146.

1. An easement rent is a sum paid for moving coal across another's land.

ferent years — A in 1847 and D in 1864. It will also be noted in the fifth column of the table that after the easement and other charges have been added to the royalties the total charge per ton for all holdings is practically the same. Inconsistencies are probably due to the making of the leases in different years.

In the diagram Mine K appears to have the least favored situation as it is located farthest from A and coal must cross G, H, C, and A to reach the shaft. The table shows that K receives a royalty lower than the royalty of any other holding except F, G, and H. The mine galleries have apparently been so constructed that coal from F and G must follow almost the same route as coal from K and must pay the same charges. Neither the diagram nor the table gives any explanation for the low royalty of plot H. Perhaps it can be accounted for by the panic of 1873, the date of the lease, or perhaps in this holding the operator has secured most of the economic rent for himself. Holdings A, B, C, D, E, L, and M, bring to their owners a surplus above the returns on the marginal mine, or economic rent.

Figure 2 is a diagram of another colliery with holdings in Durham. Holding A, in which the shaft for the field is sunk has the most advantageous position. Holdings C and E are the marginal holdings for the field and pay the lowest royalties. As shown in Table IV the marginal royalty for the field is 3 pence. Holdings A, B, and D yield an economic rent.

TABLE IV.[2] — ROYALTIES PAID ON HOLDINGS IN DURHAM COAL FIELDS

Plot	A — 6	pence	per	ton
"	B — 4	"	"	"
"	C — 3	"	"	"
"	D — 4	"	"	"
"	E — 3.3	"	"	"

2. Second Report, Royal Commission on Mining Royalties, British Sessional Papers, 1890–91, vol. xli. Appendix XX.

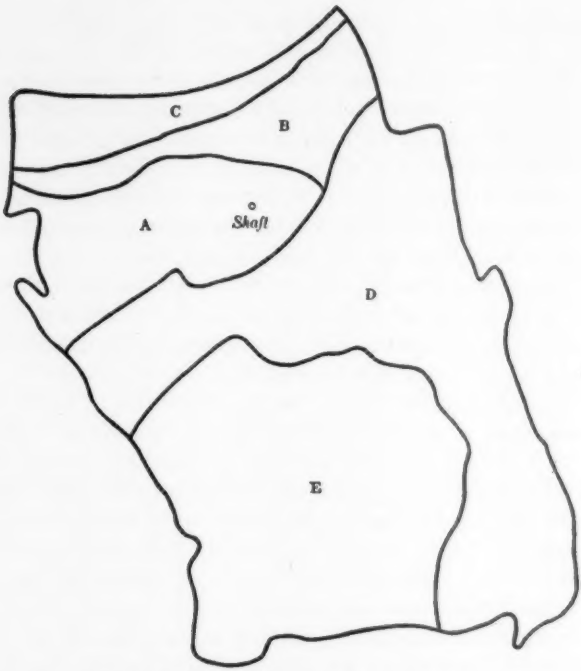

FIGURE 2. Scale: 32 chains per inch (1 chain = 66 feet).

Diagram showing various holdings comprised in the coal field attached to a large colliery in the county of Durham, England.[3]

It is not so easy to secure examples to show the practice in the United States where the lease system is not so firmly established as in England with its estates retained in one family for generations. In this country it is estimated that 65 per cent of the bituminous coal comes from land owned by the mine operator. The remaining 35 per cent comes from leased land.[4] In the

3. Second Report, Royal Commission on Mining Royalties, British Sessional Papers, 1890–91, vol. xli. Appendix XX.

4. Thirteenth Census Report (1909), Mines and Quarries, p. 210.

production of anthracite coal the percentage is even greater. Previous to the enactment of the commodity clause in the Interestate Commerce Act and its enforcement, almost 80 per cent of the anthracite was mined by the railroads or by companies controlled by the railroads; and it was estimated that the railroads and affiliated companies controlled either by ownership or by contract over 96 per cent of the unmined anthracite.[5] It is true that the railroads leased the coal lands to operating companies, but the royalties were a nominal charge and bore little relation to the true value and accessibility of the coal. The railroads controlled the operating companies and received their profits. They also received the freight money for hauling the coal to market. The Girard Estate, administered by the city of Philadelphia, owns large areas of anthracite coal lands that are leased to operating companies. Unfortunately for our purpose the royalties are not a fixed payment per ton but are a percentage of the selling price of the coal at the breaker — or in other words they are based on a sliding scale. However at least one of the intrinsic factors is evident in the determination of that scale. In some leases 18 per cent of the selling price is charged on coal from seams over 4 feet in thickness, and 16 per cent on seams under 4 feet. In other leases the percentages are fixed at 20 and 16 per cent or at 28 and 23 per cent.[6]

The quotations on pages 298, 299, and 300 from publications of the United States Geological Survey show also that in the United States, where any attempt is made to determine the royalties accurately, the same principles hold as those which govern royalties in the United Kingdom. They are partly compensation for the mineral

5. Eliot Jones, The Anthracite Coal Combination, pp. 108, 109.

6. U. S. Senate, Hearings of Committee on Manufactures, 65th Congress, 2d Session (1919), vol. iii, p. 1717.

removed and partly surplus or economic rent arising through superiority of some mines over others.

The analysis of mine royalties may perhaps be made clearer by a graphic presentation. Figure 3 is an attempt at such a presentation.

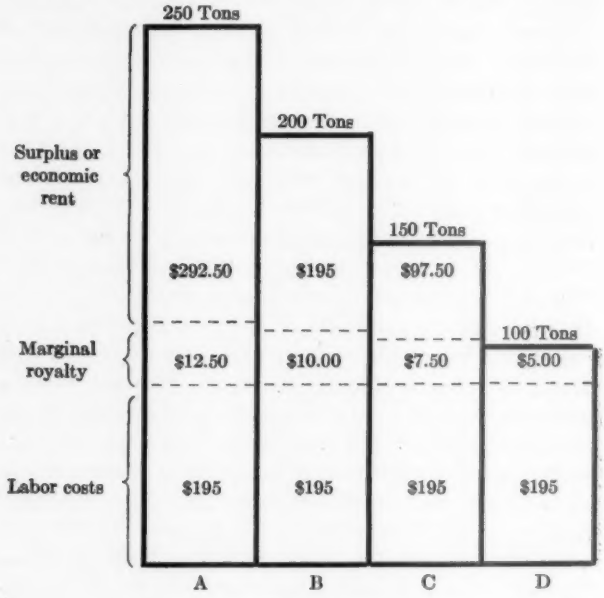

FIGURE 3

Four mines are represented, located in the same mining district and producing the same grade of coal. They differ only in depth of seams. All production costs are reduced to labor costs for the sake of clearness and it is assumed that an equal quantity of labor is employed in each mine — say ten units. From Mine A is obtained 250 tons of coal per week, from Mine B 200 tons, from Mine C 150 tons, and from Mine D 100 tons. Since the

quantity of labor employed in all four mines is the same the greater yield of the first three must be due to the greater ease of working the shallower seams. Coal is selling at the mine mouth at $2.00 per ton. Thus the value of the weekly yield of Mine A is $500, of Mine B $400, of Mine C $300, and of Mine D $200.

The current wage of mine workers in the district is $19.50 per week and each mine must pay out for its ten units of labor $195. After wages are paid at Mine D, the poorest mine in the district, $5.00 remains. It is not surplus. It is the amount that must be paid to the owner of the land for the coal removed. It is the marginal royalty and Mine D is the marginal mine. With a production of 100 tons the marginal royalty on each ton is 5 cents, the estimated marginal royalty at the present time for coal mines in the United States and Great Britain. Mine C yields 150 tons of coal per week with a value of $300 at the mine mouth. One hundred and ninety-five dollars must be deducted for wages leaving a balance of $105 from which must also be deducted the marginal royalty. The coal from Mine C is worth no more than the coal from Mine D when it reaches the surface and can command only the same marginal royalty — that is 5 cents per ton. More coal has been extracted during the week and the total marginal royalty on Mine C is $7.50 instead of $5.00. When this amount is subtracted from the balance of $105, $97.50 remains. It is a surplus arising because of the superiority of Mine C over Mine D. It is economic rent. Mines B and A have even greater advantages over Mine D and yield a larger surplus. Table V is an analysis of the value of the output for the four mines.

It is immaterial to the correctness of the theory of rent how the surplus is divided. If there is a surplus it must go to some one. Since the coal from all the mines

sells for the same price at the mine mouth and all mine labor in the district receives the same wage, neither consumer nor laborer can share in the surplus. It must go either to the owner of the land or to the operator of the mine. If the owner is fully awake to market conditions and to the superiority of his land he will secure the entire surplus; if he is not, the operator will receive a part. The fact that owner and operator may be one and the same person does not affect the existence of the surplus.

TABLE V

Mine	Tons raised per week	Value of product	Weekly wage	Marg. royalty		Surplus or economic rent	Economic rent per ton	Royalty that may be exacted per ton
				Per ton	Total			
D	100	$200	$195	$.05	$5.00	$0.00	$.00	$.05
C	150	300	195	.05	7.50	97.50	.65	.70
B	200	400	195	.05	10.00	195.00	.975	1.025
A	250	500	195	.05	12.50	292.50	1.17	1.22

Since there remains, after wages are deducted, a surplus of $305 from Mine A, or $1.22 for every ton mined, the owner of the land may demand that amount as royalty. Five cents per ton is the marginal royalty, the remaining $1.17 is economic rent. Mine B yields $1.025 per ton royalty, of which 97½ cents is economic rent; Mine C yields 70 cents per ton of which 65 cents is economic rent; Mine D yields 5 cents per ton, all of which is marginal royalty.

With agricultural land there may be either an extensive margin, reached by adding successively poorer pieces of land, or an intensive margin, reached by adding increments or doses of capital or labor to the same piece. In the latter case economic rent arises as soon as the law of diminishing returns begins to act. With

mineral land an intensive margin may be reached providing the law of diminishing returns holds for mines. Professor Marshall is of the opinion that it does not, since the yield of mines is not "a net yield, like the return of which we speak in the law of diminishing returns, . . . but merely a giving up of their stored-up treasures." [7] Most economists believe, however, that the law of diminishing returns applies to mineral land as well as to agricultural land tho some qualifications of the law may be necessary. The operator desirous of increasing his production has the choice of applying more labor and capital to the mine already being worked or of opening a second deposit less favored in its conditions. The working of rich and poor mines side by side would indicate that it is more profitable to apply capital in the poorer mines than to add it to the capital already applied in the richer mine. It is an evidence that the law of diminishing returns does apply to mines. The number of men who can work in a mine is limited by space if by nothing else and there is a similar limit to the amount of machinery that can be used. A hundred men might work a mine effectively but an increase of the number to a thousand would most certainly not increase the product tenfold. If the law of diminishing returns did not hold for mines operators could remove all the coal from a deposit in a short period of time rather than work it for 20, 50, or 100 years.

Figure 3 also shows economic rent arising from an intensive margin. Each block, instead of representing a mine as in the first illustration now represents the product from succeeding increments of capital applied to one mine. The first increment, dose A, yields 250 tons of coal per week, sufficient for a time to meet the demands of the market. There is no surplus and no eco-

7. Marshall, Principles of Economics, p. 166.

nomic rent. The situation is similar to that which would exist in a new country with an unlimited area of equally fertile agricultural land producing all that the market demanded. Farm land would command no rent. With increasing population more coal is demanded than can be produced by the first increment of capital. Prices rise until finally the operator of the mine adds another increment of capital to increase his production. If demand continues to increase he adds other increments. Because of diminishing returns dose B adds 50 tons less than the yield of dose A, or 200 tons, and doses C and D add but 150 and 100 tons respectively. The price of coal is $2.00 per ton, an amount sufficient to make profitable the addition of dose D but not sufficient to warrant the addition of dose E. Dose D is the marginal dose and the preceding doses each yield a surplus. That surplus is economic rent. With the intensive margin, just as with the extensive margin of the first example, a marginal royalty must be deducted before the true economic rent can be determined. The marginal royalty is the balance remaining after all other production costs have been deducted from the yield of the marginal increment of capital.

III

What bearing does this analysis of mine royalties have on the question of nationalization of mineral lands? Who will receive the payments now going to the owners of the land if property in mineral deposits is taken over by the government? If the government does not confiscate minerals but buys them at a going value there will be nothing to divide, so long as conditions remain the same as at the time of purchase. The returns from the mines will go to pay the original owners or to pay interest on money borrowed to purchase the minerals.

Neither consumer nor laborer can benefit except through improved operation of the mines or more efficient distribution of the product under government control. True, conditions may not remain the same as at the time of purchase. The demand for coal may increase and make necessary the opening of inferior mines thus lowering the margin and increasing the economic rent. Any additional rent then received by the government might be divided according to the principles set forth in the next paragraph.

If the government should confiscate all property in minerals, a procedure inconceivable in either the United States or Great Britain, the distribution of the royalty will depend on which of the various courses open to the government is followed. The government may operate the mines itself; it may lease the mineral rights under competitive bidding to private operators; it may grant mining permits without any charge or for a nominal fee. If the first course, government operation of mines, is adopted, the government may either cover into the treasury the payments now made to land owners as royalties, or it may pass them along to the consumer through the decreased price of coal or to the laborer through increased wages, the surplus of the richer mines being used to offset the higher costs of production of the poorer mines. If the government leases the mineral rights in the open market to private operators, the only change in the present situation will be that the royalties will be paid to the government and not to a private land owner. Neither consumer nor laborer will benefit unless the revenue from the mines makes it possible to lower taxes.

The government may adopt the policy of free mining, that is the granting of mining permits to any applicant without charge or for only a nominal fee, a policy fol-

lowed in many European countries. The mine operator pays no royalties either to the government or to the owner of the surface. In favor of such an abolition of royalties it is argued that the price of coal to the consumer will thus be lowered. Yet if the entire amount of the royalty be passed along to the consumer, the saving would not be appreciable. The following is an analysis of the cost of a ton of Derbyshire coal laid down in the cellar of a London consumer: [8]

	s.	d.
Royalties	0	4
Wages	13	5
Supplies and stores	3	6
Administration	0	5
Depreciation	0	4
Owner's profits	2	5
Coal controller's profits	0	9
Screening	2	3
Railway rate	6	3
Wagon hire	1	6
Factor's charge	0	4
Merchant's charge	12	6
Total	44	0

Removal of the royalty would accomplish a saving of 4 pence on a selling price of 44 shillings — less than .8 of one per cent. Certainly the abolition of royalties does not promise any great benefits to the consumer. He must look elsewhere for means of reducing price. Such means are not hard to find. It should be noted in the above table that almost one-half of the cost of the coal is added after it leaves the mouth of the mine (cost at pithead 23*s.* 5*d.*). Material savings could be realized through the elimination of the 700,000,000 coal ton miles wasted in railway haulage because of cross hauls, through the pooling of the 700,000 colliery trucks now

8. British Coal Industries Commission Report (1919), vol. i, p. xii.

confined strictly to use of owner, and through the elimination of the wastes of wholesale and retail distribution.[9] A saving of from 2 to 5 shillings per ton, and as high as 12 shillings per ton in some cases, has been brought about in England by the Coöperative Movement. It is in these ways, not through the abolition of royalties, that a substantial lowering of price to the consumer might be secured.

Small as the saving would be if the consumer should receive the entire amount of the royalty, he could not receive even this much. Figure 3 may be used to show just what the division of the royalty would be.

Mine D is the poorest mine that can be operated under existing market conditions. The only royalty paid on Mine D is the marginal royalty of 5 cents per ton and that amount would be the only saving to the operator of Mine D through the abolition of royalties. He can produce coal at $1.95 per ton; but for a time he may continue to sell at $2.00 per ton and pocket the saving.

Mines A, B, and C would benefit by the abolition of royalties to a greater extent than Mine D. The cost of production at Mine A would be 78 cents per ton, since the only cost of the 250 tons would be the labor charge of $195. At Mine B the cost would be 97½ cents per ton and at Mine C, $1.30. The price of coal is governed, however, not by the cost of production at the most fertile mine but by the cost at the least fertile. All the coal mined would sell at the market price. The more fertile mines would continue to yield a surplus or economic rent. It would now go to the operator of the mine instead of to the former owner of the deposit. The consumer would receive only the saving realized at the marginal mine, or the marginal royalty of 5 cents per ton.

Because of the increased profits a fifth mine may

9. British Coal Industries Commission Report (1919), vol. i, p. xix.

finally open producing 97½ tons of coal with 10 units of labor or at a per ton cost of $2.00. The market would not demand the additional 97½ tons at $2.00 per ton and the price would have to fall. The new mine would be forced to close and a new market price would be established. Since the supply price is now somewhat lower than the former market price, more coal would probably be consumed. The new equilibrium would, therefore, be not at $1.95—which is sufficient to bring to market only the former supply—but at some point between $1.95 and $2.00, say $1.98 per ton. The consumer would receive not even the full amount of the marginal royalty. To recapitulate: *Only that part of the royalty which is compensation for the mineral taken from the land, or the marginal royalty, as I have called it, enters into price. The remainder, or the economic rent, does not affect price.*

It may be argued that with the abolition of royalties the richer mines, say Mine A of the example, operating at lower costs, may attempt to supply the entire market. Mine A can produce coal at 78 cents per ton and mines B, C, and D, unable to compete with such a low price, would be forced to close. Their production would be lost to the market and Mine A would have to increase production to meet the demand. The operation of poorer mines in the district would indicate that A is producing at the point of maximum efficiency. More intensive operation would bring into play the law of diminishing returns. The additional tons could be brought to market only at increasing costs. If the equilibrium between the four mines had been a stable one it would cost as much, or more, to produce in Mine A with intensive operation the last ton demanded by the market as it would cost with extensive operation in Mine D. As production costs in A mounted, Mines B, C, and finally D would reopen.

Labor has looked to the complete abolition of royalties as a means of increasing its wage. But the rent of mines has no more effect on wages than it does on prices. There is in every mining community a general level of wages. The worker in the fertile mine receives no more than the worker in the poor mine. Otherwise there would be a movement of workers from the poor mines to the fertile. The royalty takes nothing from the worker, since the poorest or marginal mine pays no royalty except the marginal royalty. This amount would probably reach the consumer through competition; but labor might succeed through a strong combination in stopping some of it. But the benefit would be small even if labor received all. The minimum royalty for coal in England has been estimated at from 2 pence to 3 pence per ton. At the latter estimate the amount to be divided among the 1,000,000 coal mine workers in Great Britain in 1918 would have been about $15,300,000, or an increase of only some $15.00 to the yearly wage of each. The amount that would go to the mine workers through the abolition of royalties was placed at about 1 shilling a week (about $12.50 a year) by a witness before the Coal Industries Commission. [1]

Labor has also favored the abolition of royalties on the ground that the better mines would then be able to supply a larger part of the production and force out the poorer mines. Wages would be increased because of the greater efficiency of the workers in the fertile mines. I have already pointed out that there would probably be little change in production; but even if the margin were raised the worker would suffer more than he benefited. If the better mines forced the marginal mines to close down, the laborers of the latter would be without em-

1. British Coal Industries Commission Report (1919), vol. ii, p. 439. Testimony of Mr. Harold Cox, Editor of Edinburgh Review.

ployment. In the resulting competition for the jobs in the mines still in operation, I should expect a decline in wages rather than an increase.

To conclude: after nationalization of mineral rights, if the government operates the mines, a part or all of the present royalties may be passed along to consumer or to laborer. If a middle course is followed, the government taking the place of the present land owners and leasing the mineral rights to private operators, neither the consumer nor the laborer can benefit directly. Indirectly they may benefit through lower taxes if the venture should prove sufficiently profitable to the government. If all royalties are abolished and free mining is permitted, the consumer and laborer can benefit only by the amount of the marginal royalty. The more fertile mines will continue to yield a surplus and that surplus will go to the operator.

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REVIEWS

DAMIRIS' THE MONETARY SYSTEM OF GREECE [1]

THE author of this book was a highly gifted, zealous young Greek. He won the doctorate both in Athens and in Paris, subsequently entered the diplomatic service, and finally became director of the financial department of the Reparations Commission in Vienna, where he died in the autumn of 1921. The present work gives evidence of the loss which his country as well as his science suffered through his death. In view of the great significance of currency questions today, a summary of the contents of this careful and lucid study should be of interest to American readers.

After falling to a discount of 80 per cent as compared with the French franc in 1895, the Greek drachma gradually recovered. This was facilitated, of course, by the international financial control imposed upon the country in 1898. A favorable balance of payments, a reduction of the country's note circulation, together with the increase in the world's gold stock, brought about a rise in the value of the drachma, till it eventually, in 1909, was for a time quoted at par with the French franc. (Damiris, vol. i, p. 48.) Now it was a question of devising means of stabilizing this value, lest a further increase in the value of the country's money should hamper its export trade. On March 19, 1910, therefore, an amendment to the bank law, proposed by the vice-president of the Bank of Greece, Valaoritis, was adopted by the Dragoumis ministry, authorizing the bank to expand its note issues in proportion to the increase in its holdings of gold or gold bills. From that date, it purchased from private citizens bills payable in gold

1. Damiris, Christo T., Le Système Monétaire Grec et le Change. Paris, Giard & Co., 1920, three vols., pp. 363, 359, 238. 70 *fr.*

abroad, paying in bank notes, and sold the foreign bills thus acquired at an advance of one and one-half per cent to traders in need of them, thereby retiring the notes previously issued, which meanwhile had been covered by the gold bills.

This innovation resulted in no alteration in the course of exchange, because the additional notes, under the given exchange rate, were completely covered, and because their quantity was at the same time proportioned to the monetary needs of trade. The note issue remained elastic — it expanded during periods favorable to exports and contracted during the periods of wheat imports; and the currency remained stable — because the bank bought foreign bills at par and released them again at a slight advance. In this way the gold reserve of the bank was replaced in part by claims upon foreign countries. In case of a protracted balance against Greece these credits would have been exhausted; moreover, if any of the debtor countries had gone on an inconvertible basis, the foundation of this note issue would likewise have been greatly weakened.

During the Balkan War, 1912–13, the bank took up foreign bills, paying the state in notes, as it did private individuals who sold them; exchange remained at par. The currency system was sound and functioned undisturbed on the basis of the system just described.

During the World War there arose a scarcity of foreign bills payable in gold, and the currencies of the belligerent countries depreciated compared with neutral funds. The Bank of Greece therefore prudently ceased to quote exchange on New York and reduced its credits in western Europe in favor of credits in the United States. The balance of payments remained favorable as a result of the large profits earned by the country's shipping. The volume of notes in circulation in Greece had, it is true, increased three and one-half fold from 1914 to 1919, but the note circulation in both France and Italy had increased five and one-third fold, and the notes issued under the law of 1910 gave a command on credits in dollars. The situation was rendered serious, however, by the fact that the sums allotted to Greece by the

Allies were in terms of francs and pounds, whose price was falling, and that they consisted of credits upon which Greece would not be entitled to realize until six months after the termination of the war. In addition there were the material effects of the World War on Greece. This country like others restricted the export of capital, while the submarine warfare hampered shipping and commerce. Consequently the domestic demand for foreign bills declined, so that the additional notes did not flow back to the bank, but remained in circulation, intensifying the rise of prices already occasioned by the general scarcity of commodities.

After the collapse of the Central Powers, Greece had to remain under arms and hold her troops at the disposal of the *Entente*. The government was compelled to cover its need for notes by internal loans and bank loans. The war had reduced the country's stocks of goods, and consequently the balance of trade became more and more unfavorable. Moreover, the Greek banks undertook to finance the imports of Jugoslavia, Rumania, and the sections of southern Russia occupied by the Allies. So the country's dollar credit reserve collapsed and it had only English and French government credits to rely on. The bank had to sell dollar funds to interested parties and itself received only pounds and francs, whose value in terms of dollars was falling.

At the beginning of 1920 the law of 1910 was fundamentally changed by order of the government: the foreign credits still available could be utilized only for certain purchases approved by the government. In practice they were reserved for the government's needs in the way of foreign coal, petroleum, cereals, frozen meats, and other necessaries. The issue of notes against bills was still allowed for the needs of commerce, but the sound basis was taken from the notes. The drachma then declined parallel with the pound and later parallel with the French franc. The currency depreciated and lost its stability, so that all commercial relations were constantly upset and took on an aleatory character. On the basis of these developments the author advocated a return to an improved form of the system of 1910. Above all he urged

an additional gold cover for the notes issued on the security of foreign credits. It also seemed to him doubtful whether the Greek system could be made the foundation of a system of international notes, as had been suggested.

The system introduced in 1910 was an interesting modern experiment in the field of currency. It is instructive and suggestive for the theory of the gold exchange standard, with the other forms of which the author compares the Greek currency from 1920 to 1910. Herein lies the theoretical value of his work.

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SHARFMAN'S AMERICAN RAILROAD PROBLEM [1]

PROFESSOR SHARFMAN is already well known as a teacher and writer in the subject of railroad economics. His present book is divided into three parts. Part I is entitled "The War Administration of the Railroads" but includes also an outline history of the relations between railroads and public prior to 1914. In Part II the author sets forth what he believes to be "The Essentials of Reconstruction Policy." And in Part III he describes and discusses "The Elements of the Railroad Adjustment."

The work is well organized. The phraseology is well chosen and the style effective. If there be fault in the style, it lies in the use of sentences occasionally too long and involved. The impressiveness of the style, together with the effective organization of the matter, seem to carry of themselves such weight of authority as almost to disarm criticism in advance.

Nevertheless, criticism cannot be avoided. And it must be leveled against what appears to be the author's underlying philosophy regarding the basis of rate reasonableness. The central part of the book, to which the historical sketch leads and from which the description and discussion of present legislation follow, is perhaps the most important part. And probably the most important paragraphs in this part of the book are those which deal with the regulation of railroad rates and with standards of reasonableness of rates. The problems of rate reasonableness and rate regulation have been those of principal significance in the relations between the railroads and the public. It is these and related problems to which most attention has been given in the past, which have in general most concerned business men, commissions, and legislatures, and which are still not solved in a way wholly satisfactory. It is in his study of rate standards and rate regulation that, the reviewer believes, Professor Sharfman

1. I. Leo Scharfman, The American Railroad Problem: A Study in War and Reconstruction. New York, The Century Co., $3.00.

has most signally failed in the adequacy and convincingness of his analysis. Indeed, the reviewer believes the solution offered to be fundamentally unsound.

Let us consider, first, the basis of valuation on which reasonable return and therefore rates are to be calculated. The view which seems to have the largest amount of authoritative support is that valuation of railroad property for rate-making purposes should be based on cost of reproduction of physical plant. Certain qualifications of course are necessary. From cost of reproduction new must be subtracted depreciation. Also, if plant is in excess of reasonable requirements or is constructed in an unnecessarily expensive way, or is in part obsolete, its value for rate-making purposes should not be reckoned as the cost of exact duplication. Rather should it then be reckoned as the cost of bringing into existence a plant capable of adequately performing the required service. Possibly other qualifications of the cost of reproduction standard should be made. Professor Sharfman, however, adopts frankly the view that the proper capital value for rate making, the value on which a fair return should be allowed, is the *original investment*. His statement is (p. 303): "Actual cost of the property used in the transportation service, or actual investment committed to railroad enterprise, when honestly and prudently made, constitutes the natural basis for the computation of the fair rate of return to which those engaged in the operation of a public service industry are reasonably entitled." This statement, taken by itself, might be understood to mean that the value of a right of way acquired seventy years ago and of a roadbed and terminals then constructed should be reckoned, for the purpose of determining rates to yield a fair return, at what they then cost. The author does not, however, insist upon this view without qualification. He believes that, since rates have been long regulated without regard to original investment and since the amount of such investment cannot now be ascertained, both due respect for vested rights and practicability forbid the attempt to make the actual basis what he regards as the ideal basis. His actual proposal, then (p. 305), is to accept the

Interstate Commerce Commission's "present value" (after the completion of its valuation of railroad properties) "as a starting point for the rate-making base, with an express legislative provision that, for the future, actual additional investment, honestly and prudently made, is to constitute the only valid claim for an increase in this value." In other words, the author would so arrange matters that the value upon which a railroad or group of railroads might be allowed a fair return forty years from now would be, substantially, "fair value" *now*, plus actual investment in additions and betterments *during* the intervening forty years. At the end of the forty years, not only all new railroads but a considerable part of old ones would be valued on the original-cost basis rather than on anything resembling a cost-of-reproduction basis. And progressively, as time went on, would cost of production become more important, relatively, as the basis of valuation. The issue is clearly joined, therefore, between cost of production and cost of reproduction as the basis of valuation for the purpose of rate regulation.

Perhaps the line of cleavage between the two viewpoints and the reasons for adopting one rather than the other can be best illustrated by reference to the changing value of the land required for the building of a railroad. Indeed, the so-called unearned increment of land value is very likely what Professor Sharfman has in mind, at least in large part, when he says (p. 303): "If railway earnings were based upon such investment, the owners of the properties would receive as liberal a return as they may legitimately claim, and the users of the service would be relieved of the burden of paying a return, through the medium of transportation charges, upon such speculative increments of value as arise independently of the performance of the transportation function."

The first comment which it seems fitting to make in this connection is that, so far as the unearned increment of land value is concerned, society cannot lightly deny it to the railroads while permitting it in all other lines of business. To tax this increment heavily wherever it occurs, to tax it altogether out of existence, even to tax land values in general at so high

a rate as to appropriate all economic rent for public purposes, may be a desirable policy. But there is obvious objection to doing away with the unearned increment of railway land while allowing owners of land used in all other ways to enjoy such an increment. Such a policy, if frankly adopted, would operate to prevent railroad building. For if the would-be builders and owners of a prospective railroad know that they cannot receive a gain which, if they use the land otherwise they will be permitted to receive, they will prefer some other use or uses. A railroad company must buy the land it is to use at a price as high as would probably have to be paid for it by persons intending to use it otherwise. This price would be higher in a growing country than the present income would justify, because of the anticipation of future gains. The expected future increment would affect, for all uses, the present price. But an industry which, alone among all others, could not hope to enjoy such future gains, could hardly afford to pay for the land so high a present price as the others.

Perhaps Professor Sharfman would say, however, that the denial of an unearned increment in the railroad business might be compensated for by allowing higher current earnings. This would, perhaps, not be quite consistent with his view that valuation on the basis of original cost would relieve the public "of the burden of paying a return" upon "speculative increments of value." But it may be implied when he says (pp. 303, 304): "Nor would the acceptance of this investment basis necessarily lead to an illiberal rate policy. The needs of the transportation service and the exigencies of the credit situation must always be taken into account in the adjustment of the level of charges."

Such a reply, however, would not be sufficient. For to the policy suggested in it serious objection may be offered. Consider the case of a young and growing community in which railroad building is desirable. To compensate the railroads for not permitting them to enjoy the to-be-expected increased value of their land, when such enjoyment is permitted in all other lines of business, they must be allowed to derive more income from their current rates. Since their land will not be

reckoned as worth more in future years, in the sense that the railroads may then be allowed to enjoy a return on such larger value, they must be allowed to enjoy a larger return now. But at the beginning, when a territorial section is comparatively undeveloped and land values are low, traffic is ordinarily light. Under such circumstances, rates, to make the investment worth while, have to be high at best. And in order that returns on the investment should be high enough to make up for the unearned increment which is receivable in other lines and the expectation of which the railroads have to pay for in the price of land, rates must be still higher. (To permit high rates, needless to say, does not insure that the traffic can bear high rates.) Later, when the community has grown and traffic is heavy, rates would be forced to a very low level on the author's principle, since only low rates are then necessary to pay a return on original cost. Relatively, as between the earlier and the later period, is not this a curious way to "charge what the traffic will bear?"

But the clearest evidence that such an arrangement is undesirable is to be found in the consideration of the reverse possibility — a declining community and a decreasing value of land. The author's proposal to base rates on original investment rather than on present fair value would in such circumstances, if carried into effect, have most serious consequences. It would be necessary that net returns should be as large as ever, since the original investment is the standard of reasonableness. But with declining population only progressively higher rates would accomplish this end; and such rates would hasten the decline. If it be said that the higher rates could not in fact be charged, this would be an admission that the scheme of basing rates on original cost might prove not only undesirable but impossible of application. Surely it has no advantages from the viewpoint of public welfare over a system of basing rates on the fair present value of plant and equipment used.

The way to regulate the charges of a monopoly so as neither to unduly encourage nor to unduly discourage the industry is to make the relation between earnings and investment as

nearly as possible what it would tend to be under competitive conditions. To accomplish this purpose cost of reproduction is a better standard than original investment. For what determines the prices which a concern engaged in a competitive business can charge? Obviously, what its competitors charge. And this, in large degree, is what new entrants to the business can charge. However high may have been the necessary cost of a plant in a given competitive business, prices of the goods produced cannot be kept high if new concerns can construct equivalent plants at low cost. And on the other hand, however low the amount which concerns already in such a business had to pay for necessary real estate and equipment, if the cost to new entrants is high, these new concerns will not come in unless they expect to be able to charge prices commensurate with the present cost of plant. The old concerns then can charge prices about equally high without being driven out of the business.

Another matter connected with rates, as to which the author's underlying philosophy is believed to be no less mistaken, deserves extended discussion. Professor Sharfman proposes to limit the financial returns of the more successful roads (to some extent, the act of 1920 does so) to the advantage of the "weaker" or less successful. He proposes not only that this be done directly through the partial appropriation of surplus or excess earnings, but he considers it an argument in favor of consolidation of railroads into larger systems that the process may bring weaker and stronger roads into the same organization and so obviate the supposed difficulty of unequal earnings. "The stronger roads often prosper," he remarks (pp. 233, 234), "under a schedule of charges that drive the weaker roads to ruin; and the provision of adequate revenue for the weaker roads frequently leads to excessive returns for the stronger. . . . It is obvious . . . that a far-reaching policy of unification would help dispose of this so-called strong and weak road problem. . . . Rate schedules could then be uniformly applied to all the roads in a given region, without starving some and allowing unreasonable profits to others."

Surely this view cannot be allowed to pass unchallenged. If one railroad lies in a territory where natural resources are rich and population dense and so makes large returns on its original cost; and if another lies in a territory where natural resources are poor and population sparse, so that its traffic hardly pays the cost of operation — is it desirable that, through combination or otherwise, one should subsidize the other? Is it desirable that those regions which have natural advantages should, through transportation rates which, however low they seem, are unnecessarily profitable to the railroad serving them, subsidize indirectly other regions where the natural advantages are so slight that industry cannot live if it has to pay reasonable transportation rates? Must not such a policy tend to drive industry out of the places where it can be most effectively carried on and encourage its location where its output would be less? Should we not more probably get industry into those regions where the largest output could be secured with the least labor if we endeavored so to adjust rates that the industries and people of each region would have to pay the reasonable cost of the transportation system serving them? And if an unduly circuitous transportation system had been mistakenly made or if a transportation system had been constructed at undue expense for whatever reason, ought not its owners to suffer the loss?

Closely associated with this matter of consolidations is the common notion, to which the author gives support, that (p. 237) "a line that is weak when standing alone may prove to be a valuable connection or feeder for a larger system." But why may a road prove to be a valuable feeder to a larger system? Must it not be because such a road brings to that large system traffic on which the large system can charge rates covering much more than the incident additional expense imposed in carrying it? Such traffic, then, would be worth taking by the large system at lower rates than are charged. In other words, if the so-called weak road got a larger share and the strong road a smaller share of the total rate on traffic moving over both, the stronger road would still find the traffic worth taking — and the weaker road would not

be so "weak!" If the necessary cost of transportation on the so-called weak road is high, and if the strong road can afford to take a lower rate rather than not get the traffic, why not give the former road a large enough share of the rate to cover the cost of a service from which the latter also profits? Is it really true that a road which, with such a division of rates (a division giving it what its services are worth), could not be made to pay its way, is nevertheless *valuable as a feeder* to a strong system?

Discussing, elsewhere, the problem of strong versus weak roads, the author says (pp. 305, 306): "The level of charges established in accordance with its terms [i. e., a policy of fixing rates in relation to investment] would be applicable, not to individual roads, but to the carriers as a whole, or as divided into rate-making groups. But since this rate level would provide uniform charges for competing lines, and for carriers performing substantially similar services, the stronger roads — those possessing special advantages because of favorable location, an early start, government aid, or superior management — would be enabled to realize excessive earnings from the performance of their public service. Such an outcome is bound to persist under any system of private management involving multiple corporate ownership. No uniform rate level can produce the same financial results for the weak roads as for the strong. And in the absence of a comprehensive system of railroad consolidation, these differences in earning power are very glaring, and give rise to large corporate surpluses that should equitably be vested, to a large extent, in the public."

The first comment which suggests itself in this connection is that while competitive rates may have to be approximately the same for both strong and weak roads if both are to get a share of the business, non-competitive rates need not be. And many of the rates made by most railroads are non-competitive. Thus if the Norfolk and Western Railroad is a "strong" road between Cincinnati and Norfolk and the Southern Railway a "weak" road, the rates from Cincinnati to Norfolk may have to be the same for both. But the rates

from Cincinnati to intermediate points on the more roundabout Southern line may very properly be higher if the lightness of the traffic or some other adverse condition requires high rates to make the road profitable. Such higher rates are better for the intermediate points than would be the absence of the railroad. If the longer line has been built over the chosen route *in order to serve those points*, it is probably not economically desirable that the rates between Cincinnati and Norfolk which the stronger line can make low *without any discrimination against its intermediate points* should be arbitrarily made high and industry thus forced away from Cincinnati and from Norfolk in order that other points may be developed. And for the Southern Railway to meet the rates at the competitive points — provided these rates cover all extra incident costs — does not make the relative position of the intermediate points on its line any worse than it otherwise would be. If there are any good arguments for forcing the development of the territories served by "weak" lines through charging higher than necessary rates between points where the traffic is competitive with "strong" lines, the author does not state them.

It may properly be admitted, however, that even when intermediate rates are made as high on weak roads as they reasonably can be made, and even when rates are reduced on the strong roads as far as possible without being made discriminatory, the earnings of these different roads may still be very unequal. Sometimes the amount of non-competitive traffic may be relatively so small that both weak and strong roads depend on competitive traffic for the major part of their incomes. Then rates high enough to be remunerative to the weak road may be unduly profitable to the strong one. Is such inequality of incomes then unavoidable? If the strong road can handle all the traffic, it is a serious question whether a wise economic policy would keep rates high in order that (say) an unintelligently located road which is not needed may make a good income. If the strong road cannot handle all the traffic and the weaker road is needed, then rates are called for which are remunerative to the weaker road. Tho the strong

road might be able to afford lower rates, yet, since it cannot serve all the shippers, such rates would give to some shippers a special privilege. In such a case, however, there is an alternative to the policy of diverting some of the large returns of prosperous roads into a subsidy for weaker roads. This alternative is a policy of taxation. And, indeed, there would seem to be at least one very clear advantage of such a policy over a policy of putting the surplus incomes of the successful roads into a fund to be used for the benefit of the less successful. This advantage is that, by the method of taxation, the excess incomes are used for the benefit of the entire public and not for the benefit of a part only — the shippers and consumers along the lines of aided roads. If the funds raised are used for the benefit of the *whole* public rather than for the benefit, direct or indirect, of special regions, their appropriation will not be likely to divert industry from places where it can be carried on most effectively to the places favored by subsidies.

What are the things that make a railroad "strong" or "weak." Professor Sharfman says (p. 233): "Shorter routes, better grades, more favorably situated terminals, and more thickly populated territory are among the factors which tend to differentiate strong from weak roads, but they do not justify exclusive private appropriation of the savings that result from these advantages." Let it be agreed that exclusive private appropriation of these savings is not desirable. But let it be added that their use for the benefit exclusively either of weak roads or indirectly of the regions such roads serve, is also undesirable. To the extent that rates on the strong roads can be reduced without discrimination, without reducing their situation rent below what the land would yield in other uses, and without depriving them of the benefits of superior management, this should be done. What surplus then remains to them is, for the most part if not entirely, either the result of superior management or due to situation advantage. So far as it is the former, it may be well to leave it to the railroads as a proper reward for and inducement to good management. So far as it is the latter, a general system of levying special taxes on the situation value of land would

meet the difficulty. We may not be able without injurious consequences to levy a special tax on the situation value of railroad land while leaving other land less taxed. But if economists in general could cease to regard special land-value taxation as taboo, if they could worship science more and the fetish of vested rights that must not be even gradually or a little interfered with less, if they could accept the eminently sane "liberalist's program" of Professor Carver (*Principles of Political Economy*, p. 583) with "increased taxation of land values" as its first suggestion, many problems which now seem puzzling might become simpler of solution. Perhaps the taboo which constantly turns conservative economists away even from the serious consideration of such a solution, forcing them into the suggestion of all sorts of roundabout and uneconomic devices to deal with our economic ills reveals the operation of a kind of "suppressed" logic as in another phase of human life there are said to be "suppressed desires." And the results may be as bad in the one case as they are reputed to be in the other.

Historical studies of problems and legislation have their sufficiently important place, and some of the material presented in Professor Sharfman's book is interesting and valuable. But if we are to make the study of economics of real significance for the solution of difficult problems we need most of all to analyze these problems in the light of fundamental principles. This does not mean that there is in the study of principles no place for inductive reasoning. Often there is. But studies of occurrences and policies in their chronological order, coupled with commentary and discussion, do not constitute inductive investigation as the expression is understood in physical science. It is an interesting fact—let economists who like it comment in what way they choose — that so-called advanced work and the text-books of such work in economics, in many American universities and colleges if not in most, are more factual, more descriptive and less analytical than the introductory course. The student first studies some fundamental theory. Afterwards he studies foreign trade policies with a little theoretical commentary, or public

finance with much description of budgets and tax systems and a slight amount of time devoted to the theory of shifting and incidence, or transportation with emphasis on historical development of railroad systems, description of legislation and a very limited discussion of principles. The advanced student in mathematics, physics, and allied subjects delves deeper into the intricate mysteries of his subject than the novice. The advanced student in economics too often retires from his point of greatest analytical progress and amuses himself in easy by-paths — because his teacher asks it of him.

In fairness to Professor Sharfman it should be said that his book is no more purely descriptive and narrative than the generality of books in the field. None the less, it is not fundamental enough. Perhaps the author should not be blamed for doing better than many others the kind of thing that so large a number of economists are trying to do. Professor Sharfman's abilities are of a high order. He organizes effectively and writes forcefully. But he has failed, in the reviewer's opinion, to devote thought enough to some of the most complicated and difficult of the problems to be solved and he has, on that account, failed to note some of the significant probable consequences of his proposed policies.

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NOTES AND MEMORANDA

THE CHIEF PROBLEM OF ECONOMIC THEORY[1]

In the May issue of this Journal Professor Kleene published a review of my *Grundsätze der Volkswirtschaftslehre*. It is not my intention to inquire whether it does justice to my several theories or to these theories considered as a complete system. I wish to call the attention of American economists to certain problems from which I started and which receive rather too brief treatment in the reviewer's presentation. These problems and points of view are very different from those hitherto customary and, in my opinion, much more in accord with the actual relations of economic life. Moreover, Professor Kleene's review is typical of the difficulty, which the older German economists also share, of shifting from the traditional point of view to that of my theories. For American economists this difficulty is still greater. Unfortunately since the war I have been quite unable to follow American theoretical literature as thoroly as formerly; but as far as I can determine, the ordinary way of treating our subject —I call it politico-economic, because it stresses national wealth, or technical-economic, because it has for its point of departure supplies of goods and their production — is even more firmly intrenched there than in Germany. I attacked the imputation theory for the first time in 1908 in my article *Ertrag und Einkommen*, which I was able to submit to a number of American economists during my visit to that country, and subsequently I replaced it by my price and income theory. Since then nobody in Germany has ventured to defend the imputation theory, even tho the opponents of my theory have nothing to offer in its place. Even so convinced a supporter of

1. Translated by A. E. Monroe.

the classical theory as Diehl, who in 1908 in a review of my article declared that "an explanation of interest will still be possible only on the basis of the idea of the productivity of capital," is now turning away from this conception.

For Professor Kleene, however, the imputation theory is still axiomatic. And that theory is an absolute necessity, if one still reasons on the basis of value theory and believes in the possibility of deriving the value of production goods from the value of consumption goods. Not until one gives up the whole value concept — and in the arguments of Professor Kleene it still plays a most mischievous part — does one recognize that production goods are costs, have no "value," but yield merely prices, which are explained by my price theory; not till then does one recognize also that every imputation of value is superfluous — a fiction. Schumpeter says that practical life solves the problem of value imputation and so it must be soluble in theory also. A characteristic error of the traditional theory! In practical life there are only prices of cost goods; these are never an expression of value and are to be explained only by the theory of prices.

The situation is quite the same in the other sphere in which the imputation theory plays a part — in the explanation of the shares of income which are to be imputed to the contributing factors of production, whether within an undertaking or in the whole economic structure. Only because Professor Kleene does not recognize that all incomes are prices or made up of prices, and that even interest is nothing but a price, can he claim that according to my theory the existence and rate of interest remains a riddle. A riddle only for him who cannot free himself from the idea of an imputation to the various factors of production and from all the errors connected with it.

The chief problem of economic theory then is: can the organization of exchange be explained by a theory of distribution and imputation, or is the formation of income to be explained only by a theory of prices? This question, however, leads to a still more general one: are the principal concepts of economic science — price and income — to be treated as stocks of goods or as price expressions? The former is the traditional

method, which I therefore call materialistic. It was the necessary result of basing the science on national wealth and of the economic point of view involved therein. Only a stock of goods could be considered national income, and so prices and all economic concepts were also regarded as stocks of goods. This conception received its most consistent application in America in the system of Clark. Schumpeter followed him. The latter, however, has turned more and more from it of late, because the problems of money cannot be explained in this way.

In reality, however, all problems of economic theory are money problems, and an analysis of the relations of quantities of goods, instead of a price and income theory based on money, is impossible. It is not possible to explain the distribution of wealth as a simple movement of quantities of goods, because this distribution is assumed by the money mechanism, and because important effects on the distribution of wealth can result from the side of money, which today is of such cardinal importance, at least in Germany.

To replace the concept of the money mechanism of exchange by a theory of imputation is impossible, however, for two reasons.

(1) First, the causal sequence in the attainment of money yields [*Erträge*] is just the reverse of that in the attainment of production. Every imputation, however considered, must in the last analysis be based on the fact that products are derived from production goods — land, tools, labor. Money yields, however, are never derived from production goods, causally are not traceable to them. Here the causal sequence is the reverse: only with a view to the money yields and to the consumers' valuations of goods behind those yields are production goods provided at all. Cloth is produced by the loom, it is true, but valuations of the finished cloth are first the cause of the loom, the reason why costs were expended on the loom. And they are expended on it only up to the point where the weaver recovers, besides all other costs, a certain money yield. It is from this striving for money yield, which again results from the price of the finished cloth, that the

price of the loom is to be explained and in my theory is explained; not by any imputation.

(2) The second reason why an imputation to production factors is impossible is closely connected with the first. Yields and incomes — whether considered as sums of money or stocks of goods — are not at all in proportion to the production factors or to the service, are no remuneration for the special service. This idea of a remuneration also is a constant error in the traditional theory, which is inseparably involved with imputation and appears typically in Böhm-Bawerk and Clark. One wage, however, is not high because the work is difficult, another lower because the work is easier or shorter. One profit is not higher because more capital was used, another lower because less capital was used. The high wage is high because the supply of the services in relation to the demand is small, the other is low because a large supply finds only a relatively small demand. Therefore income shares are to be explained only as an aspect of price determination, and are so explained by me.

Of all this the reader learns nothing from Professor Kleene's review. With respect to my rejection of the imputation theory he refers only to the incidental remark quoted from my pupil Mohrmann that not bow plus arrow equals bird, but bow times arrow, and therefore one cannot impute part of the product to any one factor. But this idea of an equation is also completely contrary to my views. It is not a question of any kind of equalization — all equating in economic theory is absurd, at least it can explain nothing — but of a comparison of utility and cost, in which the cost expenditures are determined by the expected utility.

Because of the entirely different causal sequence the investigation of monetary phenomena cannot be replaced by one of the technical relations between production goods and products, nor can their explanation result from an imputation to factors of production. Professor Kleene remarks that "a formulation of economic theory in terms of money prices rather than in terms of value and of quantities of goods has some pedagogical advantages." Professor Kleene is scarcely

aware what astonishment this peculiar opinion must arouse not only in me but in many German economists who, as a result of the experiences of economic life, have long since progressed beyond this stage of economic theory. To be sure, the so-called national wealth, an imaginary magnitude with which economic theory is not concerned, consists of goods; but the problems of exchange and of taxation are money problems.

It is thoroly erroneous, therefore, when Professor Kleene says "to the seasoned theorist there is a gain in stripping off the monetary side of economic phenomena to get at fundamental factors, to think in terms of value rather than of price." The fundamental factors of economic life are not stocks of wares and instruments of production, but are of a psychological order — wants and comparisons between utility and costs, which in these days of sharp separation between the economics of consumption and acquisition also find their point of departure in money. For this view of economic life, however, nothing is more dangerous and confusing than the "value" concept, which in Professor Kleene's argument against my theory plays the principal rôle. On this point also, I believe, progress has been made in Germany. With the exception of entirely unprogressive theorists, to whom nobody pays attention, nobody in Germany now ventures to speak of exchange value and the like. As a matter of fact there is no exchange value, there is nothing in economic life except prices, obtained and estimated prices. (The price estimating of durable cost goods, the so-called capitalization, is thoroly discussed in my *Grundsätzen*.) A theory has all the greater claim to truth the less it uses figments which are not met in economic life. Therefore nothing will ever come of this "thinking in terms of value."

In this connection reference may be made to Professor Kleene's curious remark that my theory is one "of comparative price only, that is of value. . . . To make it a complete theory of prices, it needs to be supplemented by a theory of general price level." The "general price level" is also one of the most confusing and erroneous notions in economic theory.

The measurement of it has a certain interest for statisticians; but one can recognize the movement of prices and their causes only by considering the effects of supply or demand on particular prices, not by computing an average price level. Thanks to my continued controversy against it and to the things which we unfortunately have had to witness in German economic life, the concept of an average price level plays little or no part in discussions of present-day price problems in Germany, and Professor Kleene's admonition that other German economists and I should not so confuse the problems of the price level has rather missed the mark.

Professor Kleene says with respect to the question whether there be monetary problems or those of stocks of goods, "if he had been less fascinated by it (the money veil), he might not have overlooked so completely certain important problems." For example, he says, there is nothing in the two bulky volumes about the character of capitalistic production or about the rôle of capitalists in the increase or maintenance of the apparatus of production. There, it seems to me, my critic again allowed himself to be influenced too much by his traditional materialistic point of view. For capitalistic economy is not characterized by the utilization of production goods simply —in that case there would never have been a non-capitalistic period — but, as Marx has already pointed out, tho with a bias, by the fact that the production goods are translated into the money form, are estimated in money terms. And so the question "of the part played by capitalists in increasing or maintaining our productive apparatus" is one of money economy. Production goods are bought with money, and the problem of capital creation is: to what extent and on what production goods is money, i. e., income shares, expended. Professor Kleene's assertion that there is nothing on this question in my book is very strange. For in Part 10 there is a very thoro discussion, under the very title of Capital Formation. Perhaps, however, he did not find it "worth the effort" to read so far. There I have developed theories about the connection between capital formation and consumption and in addition about the problem of crises, which are unques-

tionably new and which have since been much quoted and discussed in Germany. Why Professor Kleene passes them over in silence I do not know.

It is true my book contains no solution of the imaginary problem raised by Böhm-Bawerk and the materialistic theory, which maintains that interest can be explained by imputation to the material production goods, i. e., by a "productivity of capital." But my work does give a thoro demonstration of the reason why this is an imaginary problem: because of the confusion of the technical with the economic causal sequence, in short because of the erroneous technical-materialistic conception of economics. Money yield does not arise from the factors of production of any kind, as products may be said to come from the earth, but the reverse: the yield, the prospect of it, is the first occasion for the utilization of production goods, whether labor, goods including land, or money. (Here also is the reason why I include land in capital, under certain conditions — not in itself, for no production good is capital in itself — which Kleene mentions as a curiosity.)

Yield is not a problem of economics at all, but a presupposition, since all economic activity consists in obtaining an excess of utility over cost. And so it is just as erroneous to trace interest causally back to so-called capital goods as it is to trace the wage of the worker to the work or the money yield of the farmer or tenant to the land. The economic causal sequence is the reverse of the technical. In the former, production goods are costs, and, in whatever form, are provided and utilized only in the expectation of a yield. The theoretically accurate formulation of this is the "law of the equalization of marginal yields." The reasons for this I cannot discuss further here.

I am aware it will be a long time before this difference between the technical and the causal sequence is generally recognized in all its consequences for economic theory. But deeper insight into the whole organization of exchange, the exposure of such imaginary problems as those connected with the materialistic concept of capital and the theory of imputation, the feasibility of explaining present-day problems of

price change and the like, are so fundamental that their superior importance can hardly be denied, once they are understood. This is troublesome, to be sure, for the supporters of the older point of view, who cannot free themselves from their traditions and adopt the very different attitude which my theory requires. Professor Kleene's review is evidence of this. I can say today, however, on the basis of the adherence which this theory has secured in Germany, Switzerland, Holland, and Japan, that it will make its way. For above all, it is much more realistic than the traditional attitude. I had hoped that there might be persons who would appreciate its basic idea in the United States also, where, next to Germany, there is the greatest interest in economic theory, altho I knew that the materialistic theory had taken deep root there. Professor Kleene's article is the first I have seen from this quarter. I do not believe that all American economists will hold to his position. I have therefore taken the liberty of calling attention to some of the fundamental problems which have led me to work out my opinions.

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THE EARLY USE OF THE TERM INDUSTRIAL REVOLUTION

SOME interest attaches to the date when the two words "industrial revolution" were first used to describe the industrial changes of the end of the eighteenth and the first quarter of the nineteenth centuries. Did the term originate with the historians of the great period of transition or with the early socialist writers?

Mantoux was satisfied to consider Arnold Toynbee as father of the term.[1] Wood thought it "not unfair" to follow Toynbee in crediting authorship.[2] As late as 1910, then, writers were saying that the use of the term dated from about 1884. In 1914, Professor Rappard pointed out some earlier uses, notably that by Karl Marx in *Das Kapital* in 1867, and the rather general use by John Stuart Mill in the first edition of his *Principles* in 1848.[3] For some reason, Professor Rappard seems to infer that Marx heard the words in conversation with Engels.[4] He concludes by naming 1845 as the date of the first printed form of the term and Engels as the accredited user.[5] While Professor Rappard thus ascribes the term to the socialist writers, not merely in origin but in popularization, he hints at the possibility that it may be found in the writings of the first half of the century.

The student of French industrial history finds in the two words, which describe fifty years of Europe and thirty of America, a very natural association with the political changes of the French Revolution and the rapid industrial changes. My interest in the origin of the term arose from reading the debates of the French Chamber of Deputies. *Le Moniteur*

1. Mantoux, Paul, "Le mot est, croyons nous, d'Arnold Toynbee." La révolution industrielle au XVIII^e siécle, 1905, p. 1, note.

2. Wood, Henry T., Industrial England in the Middle of the Eighteenth Century, 1910.

3. Mill, J. S., Principles of Political Economy, 1848, p. 581.

4. Rappard, W. E., La révolution industrielle, 1914, p. 4.

5. Ibid., p. 4.

Universel of August 17, 1827 reprinted an article from the *Journal des Artistes*. In the center of the page in italics were the words "Grande Révolution Industrielle." The article is an important one. It is significant that the term is there used technically to describe the change in arts, manufactures and social institutions. The author sets out to examine "jusqu'à quel point les arts ont pu exercer leur influence dans cette grande révolution industrielle." [6] With considerably less prominence the term was used June 22, 1829 by Prosper de Launay. A speech of his was preceded by a long discussion of the marked changes in local industry, and there the attention of the legislators was called to the displacement of the linen industry in northern France, not alone by the cotton industry, as is so frequently stated, but by the beet sugar industry which had replaced the culture of flax. He says "Le département que j'ai l'honneur de représenter a été plus qu'aucun autre victime de cette révolution industrielle; sa fabrication, considérable il y a vingt ans, n'existe plus aujourd'hui." [7] Launay had adequate precedent for his use. Chaptal had suggested that some of the inactivity of the linen industry was due to a decrease in religious attendance, accompanied by lessened emphasis upon pomp and luxury in the church service. The paragraph introducing this comment reads: "D'autres causes peuvent encore produire des révolutions dans l'industrie." [8]

Similar quotations may be given from the works of early French geographers and historians. Guilbert's *History of the Cities of France* was well known in his time. He writes, "L'ère des révolutions industrielles avait commencé pour la ville de Rouen avant l'ère des révolutions politiques." [9] In one case he applies the term, as did a few other writers, to the commercial changes of the sixteenth and seventeenth centuries. In a description of Lyons (written 1844) occurs this sentence, "Le XVII[e] siècle vit s'opérer cette révolution in-

6. Le Moniteur Universel, August 15, 1827, p. 1202.
7. Ibid., June 22, 1829, p. 1090.
8. Chaptal, De l'industrie Française (1819), vol. ii, p. 231.
9. Guilbert, Histoire des villes de France (1847), vol. v, p. 487.

dustrielle." [1] His use is more fortunate a few pages further on, when he points out that the Jacquard loom had to struggle against routine and despite the protection of Napoleon was not adopted until 1812 when "elle opéra une veritable révolution dans la fabrique." [2, 3]

Sometimes the change in manufactures is distinguished from the change in commerce — as "Les révolutions religieuses, politiques et industrielles." [4] Comte would have included the significant broadening of ideas as a "révolution morale." [5]

Marx and Engels were therefore taking advantage of a formula in general use in France and adjoining countries in the early twenties — a formula which did not cease to be used throughout the sixties and seventies.[6] Picard attempts to date the revolution in England by events in France. Translated freely his statement is: at the time when France finished her political revolution, a "révolution industrielle" had come in England by the use of steam as the principal power for manufacture and by prodigious improvement in machines to spin cotton.[7] The same writer dates the revolution in France from 1815 to 1830.[8]

Since my study covers intensively only the years 1820–40, I have not attempted to determine the usage earlier than the twenties. Darnis in 1844, writing of the expositions, makes a reference to the early period of some interest. He would seem to suggest that the idea of associating the change in industry with the political changes brought about by the Revolution came very early. It dates in his opinion from the time of the

1. Guilbert, Histoire des villes de France (1844), vol. i, p. 392.

2. Ibid., p. 398.

3. The famous Bowring report refers to the Jacquard loom as "quietly revolutionising the trade both of St. Etienne and Lyons." Br. Parl. papers, 1835, vol. xxxvi, p. 45.

4. Guilbert, vol. i, p. 398.

5. Comte, Système de politique positive, Paris, 1824, p. 69.

6. Legrand uses the term as follows: "On vous a dit que les chemins de fer produiraient une révolution commerciale et industrielle." Arch. Parl., June 19, 1837, vol. 113, p. 29.

7. Picard, St. Quentin (1867), vol. ii, p. 6.

8. Ibid., p. 121. "De 1815 a 1830, la France devint de plus en plus une nation industrielle et l'un des résultats de cette révolution économique fut de donner à la classe laborieuse une importance toute nouvelle."

first exposition in 1798. This exposition was planned to celebrate the anniversary of a revolution which had proclaimed freedom of work and opened new pathways to the genius of man. After the campaign in Italy, many were looking about for a fitting plan of a national celebration of the anniversary of the Republic. Some suggested a fair, others a horse race, still others an exposition of painting, sculpture and engraving. François de Neufchateau, Minister of the Interior, in a speech at the Champ de Mars suggested an industrial exposition. The idea, Darnis assures us, was received with much enthusiasm.[9] In this same year Bonaparte placed the designation "Member of the Institute" before his title of General. Was this a recognition of the importance of industry? It was so meant. The Minister of the Interior considered the first exposition — a really feeble affair — the initial step in a campaign disastrous to English industry. He is quoted as having written to the Departments "nos manufactures sont les arsenaux d'où doivent sortir les armes les plus funestes à la puissance britannique." [1]

One need not read beyond Chaptal to find a carefully quoted use of the word "révolution" in 1806, to describe the change going on in industry. Before 1790 all the manufacturers of Elboeuf had made one kind of woolens, at a uniform price. Moreover, so long as yarn was uneven it was impossible to dye merinos in lighter shades. Better spinning and dyeing made possible a great variety of fabrics. On December 27, 1806, the Chamber of Elbœuf proposed regulating the style and types of goods, tho they recognized that "cette révolution a été utile à l'industrie."[2] Chaptal refers to the transition in similar terms: "Les machines qui remplacent aujourd'hui la main de l'homme dans presque toutes les opérations de l'industrie manufacturière ont opéré une grande révolution dans les arts." [3]

It is certain that the comparison of the industrial changes with the political changes of the revolution was specifically

9. Annuaire de l'economie politique, Paris, 1844, p. 220.
1. Ibid., pp. 222, 223.
2. Chaptal, vol. ii, p. 289.
3. Ibid., p. 29.

made many times later. Nothing could be more concrete than the words employed in a tariff discussion in the Chamber of Deputies in 1836. Lamartine says, "c'est une révolution tout entière, c'est le 1789 du commerce et de l'industrie." [4] To Bulwer the rush of new opinions was most stirring. He felt that "the spirit and intellect of the country received a fresh birth, and at the same time a fresh race was born — a race that had neither the ideas, the wants nor the history of its predecessors. This was the *real revolution*." [5] In fact the far-reaching effect of the French revolution upon social and industrial life was a favorite theme of philosophers from the time of Condorcet.[6] Comte, the pupil of St. Simon, could not, as he did not, neglect to stress its significance.

Writers use the term revolution to describe any marked change in the conduct of an industry, whether it was "l'invention de la machine à vapeur qui opère une révolution dans les procédés de l'industrie et dans le système de la navigation," [7] or the use of steam in navigation which ought to produce "une véritable révolution dans les relations sociales." [8] In 1810 the introduction of carding and spinning in the arrondissement of Vire reduced the number of workers employed on these operations by more than three-fourths. These mechanical changes brought about "une révolution générale dans le cardage et la filature de la laine." [9] In the same valley the paper industry "a subi toute une révolution par l'introduction des mécaniques à papier." [1] For the wine industry, Pataille speaking on the budget July 15, 1829 feared the vineyards on the hills would be displaced and forced into the river valley. He refers to such a possible change as "cette grande révolution." [2]

4. Arch. Parl., April 14, 1836, p. 48.

5. Bulwer, France, Social, Literary, Political (1834), vol. ii, p. 39.

6. Note his famous contrast in 1804 of the social effects of the American and French revolutions. Condorcet, De l'Esprit Humain, p. 28.

7. Report on mines by Count d'Argout, Arch. Parl., March 31, 1837, p. 262.

8. Arch. Parl., May 12, 1835, p. 705.

9. Annuaire Normand, 1837, p. 185.

1. Ibid., 1849, p. 357.

2. Le Moniteur Universel, July 15, 1829, p. 1272.

In the early part of the nineteenth century, France led the world in the application of chemical science to industry. Scientists were retained as technical officials in many comparatively small plants. Berthollet credited the great progress in French manufactures to the technical knowledge of experts who directed the practice of artisans. He wrote: "Une heureuse révolution s'est opérée à cet égard parmi nous; ce n'est plus à des ouvriers ignorans que sont confiées nos fabriques; on trouve dans la plupart des hommes très-éclairés, des physiciens très-instruits, et c'est à eux qu'il faut s'adresser si l'on vent provoquer les progrès des arts utiles." [3] The brilliant discovery of the Prussian chemist Margraaf, who found sugar crystals in the fiber of beets, was heralded as having made "une révolution dans les rapports commerciaux des deux mondes." [4] J. B. Say had referred to foreign commerce, which "a subi une nouvelle révolution par l'invention des machines à filer le coton." [5] The changes in the sugar industry fascinated contemporary writers. It would be easy to give numerous quotations of extravagant statements concerning the effect of the growth of sugar beets as well as of the process of refining. The domestic sugar industry modified colonial policy, affected agriculturists, interested shippers, to say nothing of the group of refiners who clamored for protection or the consumers who now and then had an advocate for no protection. Especially notable was the increase in the consumption of sugar. Speaking on this subject one of the deputies vividly set forth what would have been the astonishment of Louis XIV had he known the amounts of imports of cotton, sugar, and tea into England and France. The deputy added "c'est une révolution véritable dans les consommations du monde." [6]

More important than the date of use is the meaning attached to the term. One must not take too seriously the actual changes which led to the large phrases of enthusiasts.

3. Berthollet, C. L. and A. B., Elements de l'art de la Teinture, 2d edition, 1804, Introd.

4. Arch. Parl., July 6, 1837, p. 43.

5. Say, J. B., Cours complet d'economie politique, Ed. II, p. 406.

6. Arch. Parl., March 23, 1837, p. 567.

Apparently French industry could withstand a great deal of "révolution." The best estimate at the end of the twenties gives only 29 per cent of the working population of the Midi engaged in industry, and even in the north of France but 38 per cent.[7] And quotations compiled in a scrappy way do not do justice to the authors cited. French writers knew that their country was too short of investment capital to develop large-scale industry rapidly. Discussion of the real significance of the term must be part of a description of the industry of the period. To that I hope to turn as the conclusion to a study of which this is in some sort an introduction.

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7. Dupin, Forces productives et commerciales de la France, 1827, vol. ii, p. 260.

A CRISIS IN DEPOSIT GUARANTY IN THE STATE OF WASHINGTON

In a recent issue of this Journal Mr. Thornton Cooke pointed out the danger confronting the Nebraska fund for the guaranty of bank deposits, because of the comparatively small reserve and the large amount at risk in certain large banks. The state of Washington at the present time furnishes an extreme illustration of the danger involved in the unscientific concentration of risk which may occur under a voluntary system of deposit guaranty. During four years following the establishment of the Washington system no failures had occurred among member banks. But on July 1, 1921 the largest bank of the system, the Scandinavian American Bank of Seattle, closed its doors. The available fund is entirely inadequate to meet the claims of depositors. While the fate of the existing system is yet undetermined, it seems probable that it will break down entirely.

In 1917 the legislature passed a voluntary deposit guaranty law. The fund, created by the original law to consist of one-half of one per cent of the average annual deposits eligible to guaranty, was not withdrawn from the banks but was simply charged to the guaranty fund on the books of the bank. It was not charged, however, against the income of the year when credited, nor was there any statutory provision for amortizing this expense over a period of years. As will be shown later, this means a very heavy concentration of expense in any year when losses necessitate an assessment upon the fund. In order to secure payment of assessments the 1917 law required member banks to deposit securities in trust with the Guaranty Fund Board amounting to one per cent of the eligible deposits.

During the 1921 session of the legislature some important changes were made. The guaranty fund, so-called, was increased to one per cent of eligible deposits but remained merely a book transaction between the member bank and the

Board. The deposited securities were returned to member banks. Assessments against the guaranty fund constituted a first lien against the assets of the member banks. A second fund was created known as the contingent fund, to be accumulated by annual assessments not to exceed one-tenth of one per cent of average deposits in the member banks. Actual cash payments of this amount were to be made to the Guaranty Fund Board. The expenses of the Board — a nominal amount, since no salaries are paid — were to be drawn from this fund. Income derived from the investment of the contingent fund was to accrue to the benefit thereof. It was hoped by the 1921 amendments to build up a more substantial fund than could be accumulated under the original law. It is clear, however, that at the rate of one-tenth of one per cent per year, thirty years would be required to accumulate a three per cent fund if no losses occurred and if the income from investments equaled the expenses of the Board.

The report of the Bank Commissioner covering the year 1920 contains the last published statement of the guaranty fund banks, as of November 15, 1920. At that time 116 banks and 4 branch banks were members of the guaranty fund. The law provides that public deposits may be secured either under the guaranty fund or by the deposit of collateral or surety bonds. It is not possible, therefore, from the published statement to determine the exact amount of eligible deposits in the member banks. Roughly it amounted to $65,000,000. The amount credited to the Guaranty Fund Board was $320,908, presumably one-half of one per cent of the eligible deposits at the time of last adjustment of the fund.[1] With two outstanding exceptions the members of the system were relatively small banks. The largest bank in the system was the Scandinavian American Bank of Seattle with total deposits November 15, 1920 of $15,834,624. The Spokane and Eastern Trust Company of Spokane, with deposits of $11,399,486, was the only other bank having deposits of over two millions.[2]

1. Fourteenth Annual Report of the Bank Commission, p. 25.
2. Fourteenth Annual Report of the Bank Commission, pp. 37–51.

The failure of the Scandinavian American Bank of Seattle, which occurred July 1, 1921, was the result of overexpansion of loans during the administration of a former president; the failure of the Scandinavian American Bank of Tacoma in January, 1921, a bank which had originally been established as a branch of the Seattle bank and which had been closely affiliated with it until recent years; and the depreciation of assets due to the general shrinkage of property values. Early in 1920 a new administration having the full confidence of banking and business interests was placed in control. An earnest effort was made to clear up the doubtful assets of the bank and improve its financial position. Under the direction of the Federal Reserve Bank of San Francisco, of which the Scandinavian American Bank of Seattle was a member, and of the state banking department, an assessment of 100 per cent was levied upon the stockholders, bringing in $1,000,000 in cash. Under the adverse financial condition prevailing these strenuous efforts proved unavailing. Still further endeavors at rehabilitation were then made, one of which involved postponement of part of their claims by the larger depositors (over $100 each) and failed because of their unwillingness to accede.

During the time when it seemed possible to effect some plan of reorganization the Guaranty Board postponed levying an assessment upon the member banks. Finally the Board felt that a call must be made immediately for the payments for the benefit of the guaranty fund. On December 7, an assessment of one-half of one per cent, the maximum amount which banks may be assessed per annum, was levied. At the same time the member banks were asked to turn over the one per cent already credited to the fund upon their own books. In other words, banks were asked to pay at once 1½ per cent on their eligible deposits.

There was available in the guaranty fund about $500,000. A levy of one-tenth of one per cent had been made earlier for the contingent fund, which should add about $40,000 to $50,000 more; the one-half of one per cent assessment may be expected to bring in about a quarter of a million. A large

proportion of this total of about three-fourths of a million, as the writer learns from the officials has been collected in cash by the Secretary of the Guaranty Fund Board.

The burden of this levy upon the member banks can only be realized when it is recalled that the fund had never been charged against income in previous years, except by a very few banks. The result is that 1½ per cent of the deposits must be withdrawn from the current year's income. In the typical bank, deposits are approximately ten times capital. Accordingly this levy is equivalent to about fifteen per cent upon the capital stock of member banks. Some of these banks, especially in the agricultural districts, are already hard pressed by the adverse financial conditions. To them the new load becomes almost unbearable.

The law contains a section providing for voluntary withdrawal of member banks. In order to avoid the burden of further assessments, banks have been flocking out of the system in recent weeks. The second largest bank of the system — the Spokane and Eastern Trust Company — had filed notice of withdrawal in March, 1921; but during the period when reorganization of the Scandinavian American seemed possible, there were few withdrawals. When that failed, there appears to have been a concerted movement to get out. It was announced on December 30 that all but seven of the 120 banks had withdrawn.

The liability of the withdrawing banks for further assessments can only be determined when the Supreme Court of the state makes its interpretation of the law. The language of the pertinent section does not make it clear whether banks can be required to pay assessments beyond one year from date of their withdrawal. The opinion of some who were instrumental in drafting the law is that the intent of the legislators was to make member banks fully liable for losses due to failures occurring while they retained membership in the fund. On the other hand, others in an equally good position to know maintain that a limited liability was certainly contemplated, and that there was no intention to hold a member bank liable for an indefinite number of annual assessments

after it had withdrawn. The decision of the court cannot be given for months, possibly years.

Meantime the special deputy supervisor in charge of liquidating the defunct bank is making collections upon loans and other assets and turning the proceeds over to the treasurer of the guaranty fund. Under date of December 19, 1921 a letter was sent to all creditors of the bank enclosing warrants for the full amount of the approved claims. There was also a check for twenty per cent of the warrant signed by the secretary of the guaranty fund. The amount of this dividend is endorsed upon the warrant. Under the terms of the law warrants should bear interest at the rate of five per cent per annum from date until redeemed, but the warrants which have been issued do not contain any interest clause.

Guaranteed claims have been approved amounting to $7,889,770. The book value of assets on December 19, was $9,890,624, but it is impossible to say at this time what can be realized upon them. Unpaid assessments upon capital stock amounted to $991,347, part of which, or all, may prove uncollectible. Action has been brought against some stockholders for their unpaid assessments.[3] Suits are also pending on many of the slow loans. A committee of Seattle bankers made a careful appraisal of the assets of the Scandinavian American at the time of closing, and reported as follows:

A. Reasonable banking assets	$6,409,773.38
B. Assets which, while too slow to classify as desirable bank resources, would still prove collectible	2,325,482.71
C. Assets of doubtful collectibility	3,043,801.14
D. Assets which seem probably bad	1,855,321.70

It was conceded that there would be substantial recoveries in class C.

It will be long before the final settlement is effected. Present indications are that the existing system of deposit guaranty is at an end, as member banks have practically all withdrawn and the heavy losses entailed by the experience

3. Stockholders have refused to pay on the ground that they were assessed 100 per cent in 1920. On December 30, 1921, Judge J. T. Ronald of the Superior Court of King County rendered a decision to the effect that they are liable for another 100 per cent assessment on their stock. An appeal to the Supreme Court is anticipated before actual payments are made.

make it doubtful whether a voluntary system can ever succeed in Washington.

The fate of the depositors is also undetermined. There is a considerable feeling that the state, by allowing the member banks to advertise their deposits as guaranteed, assumed a moral, altho not legal, obligation to see that they are paid in full. The deposits of the Scandinavian American were primarily savings accounts. Approximately 21,000 depositors had claims against the institution when it failed. Of these only a negligible number were in a position to recover by offsetting deposits against loans made to the bank. A few who would otherwise have had the right to offset lost it because their paper had been rediscounted with the Federal Reserve Bank. Of the $2,304,000 of rediscounts at the time of failure, only $8,787 remained uncollected December 19, 1921. Altho the depositors have not been benefited by these collections, it is evident that the losses to the Federal Reserve Bank will be negligible.

An interesting by-product of this failure was a great increase in postal savings deposits. It was officially reported that $1,302,070 was added to the postal savings at the Seattle Post Office during July. On the whole, however, confidence in the banks of the community was not seriously impaired.

The fact that deposits were guaranteed cannot be held responsible for the reckless banking which wrecked the Scandinavian American Bank. Its bad administration began years before its admission to the guaranty fund. Doubtless, however, its membership in the fund gave many depositors a false sense of security.

If the opinion of Mr. Cooke proves true that "still more states will be led by the present bank casualties to adopt the plan," the Washington situation should be studied with care to see what lessons may be learned. The guaranty principle is "insurance and nothing else."[4] As such it demands a scientific distribution of risk. Whether a feasible plan of underwriting large risks can be devised is not clear. The

4. Robb, The Guaranty of Bank Deposits, p. 200.

Scandinavian American failure was the largest ever experienced in Washington. To throw the burden of its losses on about 120 small banks clearly threatened ruin to these — a possibility that should have been foreseen. That it was not foreseen is conclusive evidence that greater care must be exercised in devising state systems.

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